CYCLE GUIDE

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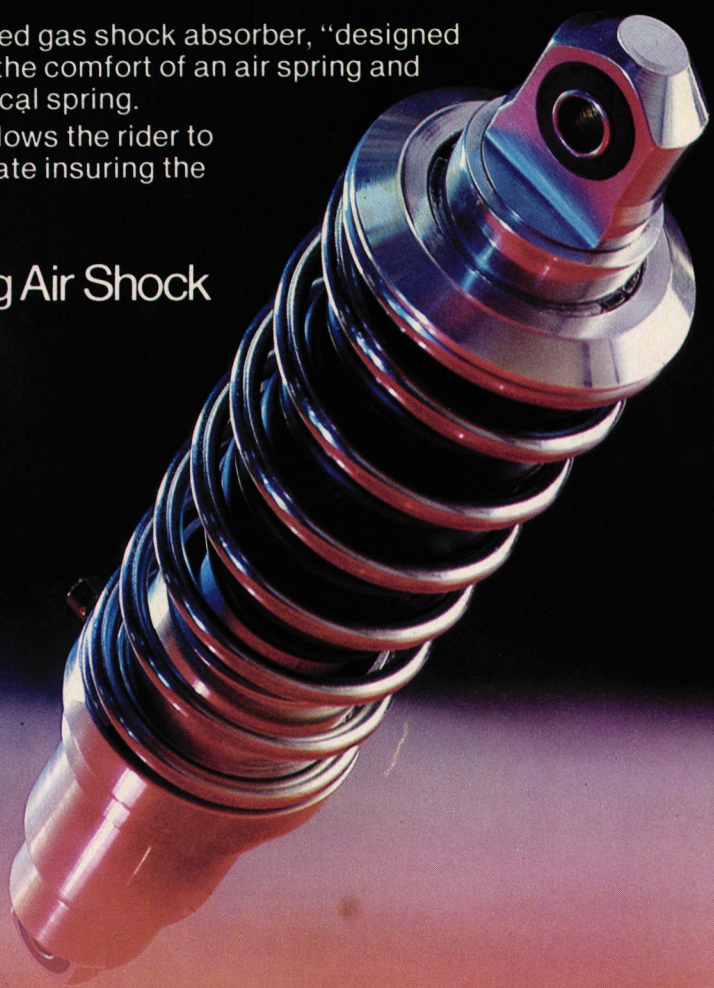

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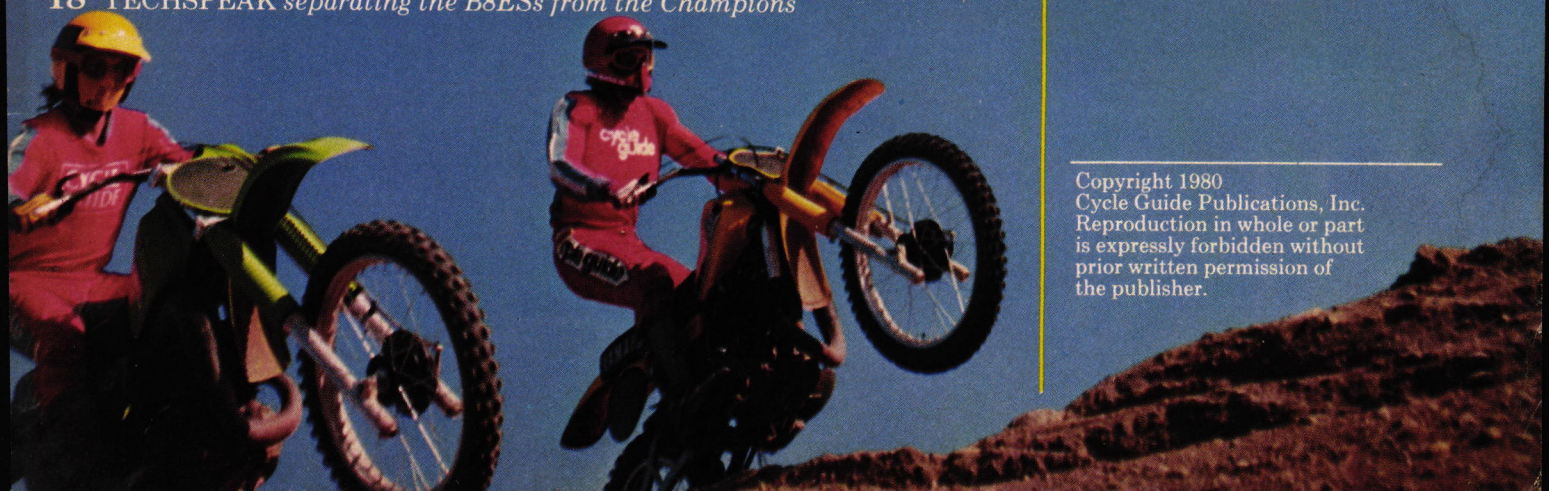

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QUOTE:
"This is the best American motorcyle your Pounds, Francs, Lira or Deutschmarks can buy."—**Pg 41**

COVER:
The thrill-seeking leathers of Larry Works pose atop the Euro-XJ for Chris Eastman's Nikon

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CYCLE GUIDE'S CYCLE GUIDE

OFF-ROAD

MAKE & MODEL	ISSUE	ENGINE TYPE	WHEEL TRAVEL, IN. FRONT/REAR	WEIGHT, LBS	HORSEPOWER @ RPM*		GEARS
Can-Am 250 MX-5	Jan. '79	Two-str.	10.8/10.0	218	32.1	8500	5
Can-Am 250 Qualifier III	Feb. '80	Two-str.	9.7/9.8	230	25.2	8000	6
Cam-Am 400 MX-6	June '80	Two-str.	11.5/10.8	233	38.3	6500	5
Honda CR125R	Jan. '80	Two-str.	11.5/10.8	202	20.8	10500	6
Honda CR250R	May '80	Two-str.	11.8/11.0	222	27.5	7000	5
Honda XL185	March '79	Four-str.	7.4/6.75	239	11.2	7500	5
Honda XR185	March '79	Four-str.	8.0/7.75	221	12.8	10000	6
Honda XR500	May '79	Four-str.	8.5/8.6	273	25.8	6500	5
Husqvarna 125CR-'80	Nov. '79	Two-str.	11.8/11.8	214	18.8	11000	6
Husqvarna 250CR	Dec. '78	Two-str.	11.8/11.8	227	24.3	8500	6
Husqvarna 250WR	Aug. '79	Two-str.	9.5/9.5	238	21.9	6500	6
Husqvarna 420AXC	Oct. '80	Two-str.	11.5/11.9	239	NA	NA	4
Kawasaki KLX250	Sept. '79	Four-str.	9.8/10.5	239	15.2	8500	5
Kawasaki KX125 A5	Oct. '79	Two-str.	9.8/10.0	194	20.0	11000	6
Kawasaki KX250	Sept. '80	Two-str.	11.3/11.2	233	26.8	8000	5
Kawasaki KX420	July '80	Two-str.	11.0/11.3	250	34.0	7000	5
Maico 400 MI	April '80	Two-str.	12.3/12.0	233	35.5	7000	5
Maico 450 MI	April '80	Two-str.	12.3/12.0	236	37.0	7000	5
Montesa Cappra 414 VE	Oct. '79	Two-str.	10.9/10.7	236	28.5	6500	4
Suzuki PE175	Aug. '78	Two-str.	8.8/9.4	216	11.2	9000	6
Suzuki RM125T	Dec. '79	Two-str.	11.2/11.7	200	19.8	10500	6
Suzuki RM250N	May '79	Two-str.	11.2/11.8	218	27.1	8000	5
Suzuki RM400N	Sept. '79	Two-str.	11.2/11.8	229	28.1	7500	5
SWM 175 ISDT	Aug. '78	Two-str.	10.0/10.0	220	17.3	9500	6
SWM 250 MX	Nov. '78	Two-str.	10.0/10.0	216	29.5	9000	5
Yamaha Pro-Tec 600	Nov. '79	Four-str.	10.5/10.1	262	46.2	6500	5
Yamaha IT250G	Dec. '79	Two-str.	9.8/9.8	244	27.7	8000	6
Yamaha TT250G	Aug. '80	Four-str.	8.8/7.5	242	17.7	8000	5
Yamaha YZ250G	March '80	Two-str.	11.2/11.6	217	29.6	8000	6
Yamaha YZ465G	July '80	Two-str.	11.2/11.8	228	39.4	7000	5

*Horsepower shown is taken at the rear wheel and does not account for transmission losses between the engine and rear wheel. These results may differ from manufacturer's claims or from results obtained using a different dynamometer.

STREET

MAKE & MODEL	ISSUE	ENGINE TYPE*	QUARTER-MILE, SEC./MPH	TOP SPEED, MPH	WEIGHT, LBS	FUEL CONSUMPTION, MPG	STOPPING DISTANCE FROM 60 MPH, FT.
BMW R80/7	Oct. '78	2C/G	13.47/97.9	104	442	38-46	138
BMW R100T (Dressed)	Aug. '79	2C/G	13.81/92.9	119	521	38-53	142
Ducati Darmah	Sept. '78	90-deg. 2D/F	13.41/97.5	118	487	25-40	120
Dunstall-Suzuki GS1000 CS	July '79	4A/F	11.32/117.0	154	488	37-.5	124
H-D CLE Sidecar	Sept. '79	45-deg. 2D/F	17.60/69.3	91	1036	25-35	181
H-D Tour Glide	Sept. '80	45-deg. 2D/F	15.58/83.9	108	785	35-44	223
Honda CB400T Hawk	March '80	2A/F	14.37/88.6	100	391	51-65	139
Honda CX500 Custom	Aug. '79	80-deg. 2E/G	14.12/92.9	102	468	44-51	146
Honda CB650	Feb. '79	4A/F	13.29/99.9	113	447	37-51	131
Honda CB650 Custom	Dec. '79	4A/F	13.10/99.8	113	447	44-52	131
Honda CB750F	Oct. '79	4A/F	12.41/106.8	128	524	31-52	135
Honda CB750K	Nov. '79	4A/F	12.77/105.8	124	525	38-52	130
Honda CB900C	June '80	4A/G	12.44/107.9	132	588	37-44	155
Honda Interstate	March '80	4C/G	13.40/96.0	121	718	33-45	146
Honda CBX	Dec. '79	6A/F	11.86/114.5	130	555	19-36	145
Kawasaki KZ550	Sept. '80	4A/F	13.45/97.1	103	426	37-51	150
Kawasaki KZ650 Custom	May '79	4A/F	13.16/100.2	116	483	45-49	125
Kawasaki KZ750	May '80	4A/F	12.50/107.8	127	471	39-50	134
Kawasaki KZ1000	Aug. '80	4A/F	12.12/111.1	130	548	37-45	131
Kawasaki KZ1000 Shaft	Aug. '80	4A/G	12.19/112.2	132	582	32-44	129
Kawasaki Z1-R	April '80	4A/F	12.24/110.6	130	552	35-48	131
Kawasaki KZ1300A GT	Sept. '80	6A/G	12.71/107.4	135	730	31-45	146
Laverda 1200 Jota	Dec. '78	3A/F	12.54/105.0	121	518	29-37	145
R.C. Turbo CB750F	Oct. '80	4A/F	11.99/113.8	NA	523	27-39	135
Suzuki GS450 ST	May '80	2A/F	14.09/92.5	100	397	55-57	127
Suzuki GS750ET	July '80	4A/F	12.62/105.5	122	523	39-55	130
Suzuki GS850N	March '79	4A/G	12.81/104.0	116	566	35-45	153
Suzuki GS1000E	Aug. '80	4A/F	11.98/113.9	136	528	32-50	137
Suzuki GS1000G	Aug. '80	4A/G	12.34/110.8	139	564	30-51	141
Suzuki GS1100ET	April '80	4A/F	11.43/118.3	140	544	37-49	116
Triumph Bonneville Special	July '79	2A/F	13.94/96.2	110	411	45-55	175
Yamaha RD400F	June '79	Two-str. 2A/F	14.16/90.2	98	355	30-43	129
Yamaha SR500E	April '78	1B/F	14.98/84.2	92	364	49-58	132
Yamaha XJ650 Maxim I	June '80	4A/G	12.60/107.4	120	453	40-54	128
Yamaha TZ750E	April '79	Two-str. 4A/F	11.62/125.5	180	331	NA	NA
Yamaha XS850LG	Feb. '80	3A/G	13.10/101.7	116	548	42-55	144
Yamaha XS1100SG	Jan. '80	4A/G	11.94/112.6	135	572	42-47	129

*A-Transverse Vertical, B-Vertical, (single-cylinder only), C-Horizontally Opposed, D-Tandem Vee, E-Transverse Vee, /F-Chain Final Drive, /G-Shaft Final Drive, /H-Belt Final Drive

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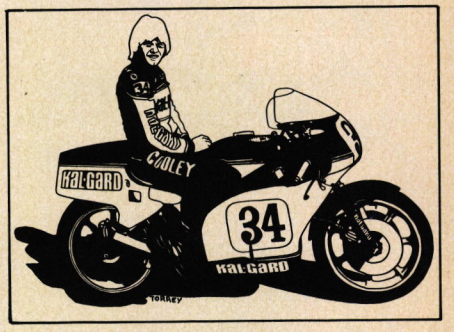

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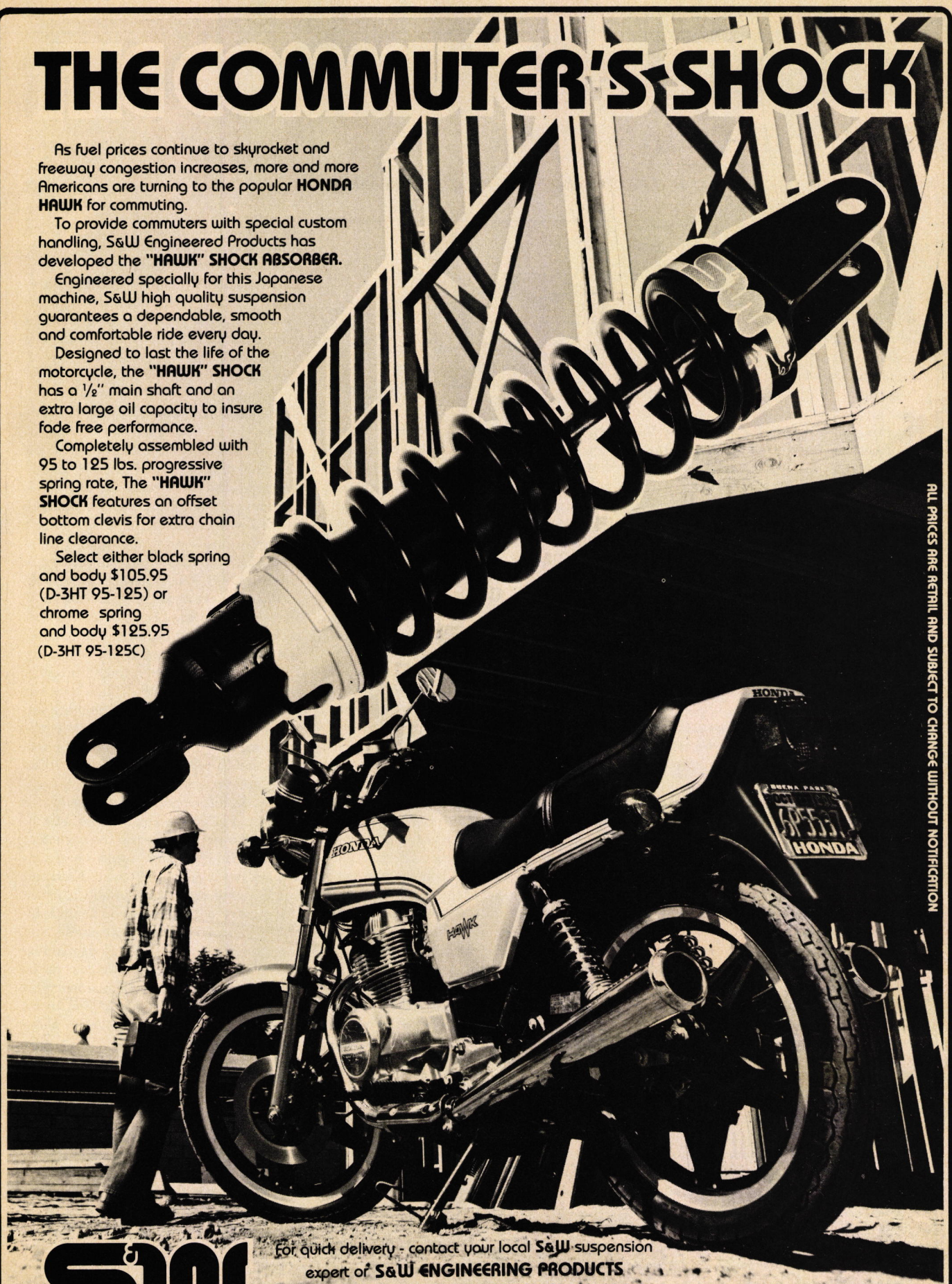

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Editorial

Roll Your Own

Making a case for the design-it-yourself motorcycle

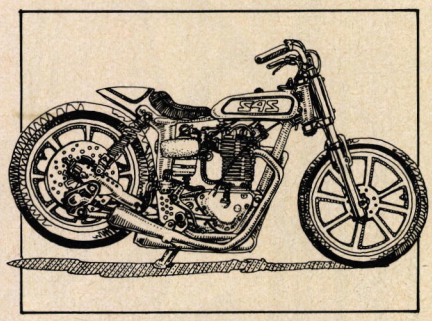
• Cars can be a lot more fun than motorcycles. No, silly, not to operate, to *buy*. And not, God forbid, to *pay* for, but to choose at the dealership.

Automobiles, you see—at least the American-built variety—can be ordered up right off of a lengthy menu of factory-installed options that lets you practically custom-build one the way you would a sandwich. You must endure a lengthy wait while the assembly line whips together the car of your dreams, just as you have to stand by for your Quarter Pounder at Ronald McDonald's assembly line if you special-order it in any way. But for those who really enjoy using things that have been put together just the way they want them, the wait is worthwhile in the end.

Motorcycle options, on the other hand, are still guided by Henry Ford's Model-T philosophy of half a century ago: You can have any color you want so long as it's black. Motorcycles are, of course, sold in lots of colors other than black, but the point is that they often come in just one color; and even the models that do offer paint options give you a choice of just two or three colors. More important, though, is that aside from a few accessories that usually are oriented toward touring, what you see, hardware-wise, is all you get as far as OEM equipment is concerned. Meaning that if you want to personalize your new bike or equip it to better serve your particular needs, you have to turn to the aftermarket. And it makes no difference whether you're able to buy everything from the accessory branch of the company that built your bike or if you get it all independently; any way you slice it, it's still the aftermarket.

And that's not a bad thing. Accessories are as vital to motorcycling as air is to tires, while the variety of equipment available from aftermarket outfits is more than any motorcycle manufacturer could ever hope—or *want*—to offer on an OEM basis. Still, after-the-fact accessory purchases have a number of drawbacks when compared to the possibilities offered by a factory-option program.

For one thing, aftermarket buying often means spending a lot of money for a different version of something your motorcycle already has—exhaust system, wheels, shocks, gas tank, etc. It also means either paying someone to install the new component (which includes labor charges for taking the old one off) or doing it yourself—if, in fact, you have the abilities and facilities



at your disposal. Worse yet, you end up with *two* components—the new one on the motorcycle and the "old" one in your garage, the latter of which you usually can't sell even though it might be brand-new and responsible for hundreds of dollars in the bike's original purchase price. And even when your aftermarket accessory is something that the bike didn't originally have—a fairing, saddlebags, a turbo kit, etc.—very seldom was it engineered especially and exclusively for your model of motorcycle. You might bolt something onto a 750 Honda and then see the same accessory on a 1000cc Suzuki and an 850cc Yamaha the very same day. So much for the concept of the personalized motorcycle.

Having a broad range of OEM options, however, would bypass most of those drawbacks. You would have to bear the expense of only one exhaust system or gas tank or set of shocks or whatever, and there would be no additional installation charges. The assembler simply would bolt the part that *you* wanted instead of the one he normally installs. And a further bonus is that most of those OEM accessories would have been designed expressly for the bike on which they would be installed.

But don't think of this concept just in terms of accessories; perhaps the most intriguing potential of a sizable OEM option list would be the mix-and-match possibilities of using bits and pieces from other models in a manufacturer's lineup. It could result in your being able to order, say, a Suzuki GS1100 with a GSl000S sport fairing. Or a Kawasaki KZ1000 with the LTD Classic's Electronic Fuel Injection. Or a Honda CB750F with a CB900 engine. Or the bike of your choice outfitted with some of the more attractive features from the other bikes in the line, whether they're simple bits of hardware like handlebars or major items such as engines and suspensions. The possibilities are endless.

Moreover, option-think even could assist the motorcycle industry in its ongoing efforts to build a specialized model for virtually every kind of specialized usage. If no production dirt bike, for instance, measured up to any given rider's vision of The One True Motorcycle, it *might* if he had a reasonable option list to work with. If a small variety of key components were available as factory-installed options—carburetors, cylinders, flywheels, gear ratios and gas tanks, to name just a few—he probably could order a basic motocrosser, enduro or playbike and design it to do a better job for him than if he had used aftermarket accessories—and for less expense, to boot.

Admittedly, all of this is just so much pie in the sky, a far-fetched idea that doesn't take into consideration the shock wave of problems it would set off throughout the entire industry. The biggest obstacle would be that the vast majority of the bikes sold Here are built way *Over There*, and that their production runs for the year are over and done with long before the bikes ever appear in the showrooms. And if the task of outfitting heavily optioned bikes were left to the dealers, the mammoth expense and complication of maintaining such a program might be more than they could stand. Then there are problems with product liability and servicing procedures and parts inventories and a number of other activities that would be affected by OEM options.

Still, somewhere in here is the nucleus of a wonderful idea that could be implemented in the future. After all, Kawasaki and Honda already have assembly plants in this country, and therein could lie the solution to making OEM options feasible. And if optioneering would end up demanding accelerated involvement on the part of the dealer networks, so be it. It's time that most dealers realized that their long-term health lies in merchandising, not just in being agents for the product.

The bottom line is simple: Motorcycles can't continue on the fantastic technological growth curve they've experienced over the last few years. Whether through excesses of legislation, complication or just plain expense, motorcycles seem likely to reach a plateau, a leveling-off of their ability to be so new and so different so often. When that happens, someone will have to find new ways to make you feel good about buying the same basic motorcycle you bought last time. Options could do that.

And you know what? I think they will.

—*Paul Dean*

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11

Letters

Pushrod pandemonium,
A few fused circuits,
Outrage, pure and simple

CROCK OF GOLD

I was so impressed by Michael Jordan's evaluation of the 1980 KZ550 and his continual favorable comparison to the extinct Honda CB400F that I rushed out the next day and bought one—a CB400F, that is.

Dr. Guido Sutter
New Orleans, Louisiana

In response to the KZ550 road test in the September issue, I decided to junk my GS1100. Any 550 that makes 54 foot-pounds of torque and 81 horsepower from 426 pounds has got to be the fastest bike of all time.

I do have two suggestions, though. Either learn to ride faster (it ought to do 11-flat quarter miles) or else correct your specification chart.

Ron Stevens
Sedalia, Missouri

We'll take the second. And the Fifth—ed.

SHORT CIRCUIT SOMEWHERE

I am writing to you because of a sketch I came across in the August issue. It's for an electric motorcycle called a Voltmaster. From the sketch, I assume that the person behind this beautiful bike is a Mr. Birkhold, working for Yamaha.

I find the aerodynamic body design and general construction to be extremely fascinating and innovative. I would like to know, since this bike is still "on the boards," as it were, if you could tell me who to write to in order to obtain all the technical data on the machine.

If the technical data and estimated cost reflect a good bike, there is a good chance that, when possible, I may purchase one. Therefore, I would appreciate any help you could possibly give me.

Warren B. Pendleton
Sauk Village, Illinois

Sorry, but any answer would be hard to make out, since every tongue was firmly in cheek on the Voltmaster—ed.

TAKING THE EASY WAY OUT

The editorial on understanding project bikes prompted me to let you in on a secret that I learned over the years. The cheapest way I know of to personalize your bike is to keep it completely stock. No one else will have one like it.

Ron Stevens
Sedalia, Missouri

UNEARTHING THE DUKE

Really, I'm not trying to defend Ducati, It's their own fault. They use the same old design with shocks so poor that even a Honda handles "better." Then look what happens; they sell out all their 1980 models.

Of course the Ducati faithful were irked by your Duke-Honda comparison (Oct. '79), but we tried to forgive. Honda did earn a little horn-blowing (as did Suzuki) by making all that motor change direction—but it took them long enough, and they had to catch us with our dampers down and our springs stiff to do it.

You claimed that the "legend changes hands" riding at ten tenths, and complained of running wide on corners due to the need for "lots of muscle" with the clip-ons. Were you too scared to allow the Duke the same 10 percent solution you offered the GS750 (July '80)? Few Ducatis are seriously ridden without better (and often longer) rear shocks. (It's not their fault if the Mafia makes them sell Marzocchi.) As for steering, stable is fun if you don't fight it.

I could go on and on about weight, torque, high-gear roll-ons or just being different, but I'm not really mad. In fact, I'll forgive just about everything if you will just tell me one thing: Will those Hesketh four-valve heads bolt right onto my old 860? Don't tell his Lordship, but he had two rear cylinders on his replica.

Rick Hammond
Montreal, Quebec, Canada

Scared? No. But reshocking the 750 was correcting a flaw, not gilding a lily, as it would have been with the Ducati—ed.

HE'S OKAY, MOM

I will eat all the rubber motor mounts you can find on a Yamaha 650, then pick my teeth with the pushrods. We all sure hope the fall didn't hurt Mr. Gingerelli's head.

Jim Griner
Princeville, Illinois

Nope, fixed it right up, as a matter of fact. He'll even dig up some non-650 pushrods and rubber doughnuts for your parts picnic—ed.

Just read about the Yamaha XS650G Special II in the September issue. It sounded so good that I ran right out and bought one. Nice bike, but how come mine doesn't have pushrods like you say yours does?

And that bit about "laced with external oil lines." Well, mine just has one external oil line. Have I been cheated? I really like lots of oil lines lacing about.

I know that the thing looks like a Bonneville, guys, but is it possible you actually bought a Bonneville instead of a 650 by mistake? It sure doesn't sound like my Yamaha, but it does remind me of my old Triumph.

John A. Anderson
Charleston, West Virginia

VALUE PERCEIVED

We Ontarians had our first taste of supercross in Toronto last June. I paid $12.50 to sit in a wet seat and get drenched, all the while trying to figure out who was fighting for the last

qualifying position. After the first three qualifying motos, it started to *pour*. The already slippery track was then ripped with foot-deep trenches and covered in puddles. Riders were getting stuck everywhere, and it was next to impossible to follow the order of the riders. The track got so impassable that the final moto was cut from 20 to 12 laps, and still only about five of the 25 riders finished. My reaction? I never spent my money more wisely. I can hardly wait for next year's supercross.

John Stachow
Myrtle, Canada

CANNIBALBIKE

Being the delighted owner of a new GS450ET, I was somewhat disappointed by the shortcomings of your test report and ride reviews. You fail to mention that the ET costs nearly $150 less than any comparably equipped 400cc-class machine. You also fail to mention that with a simple fork oil change and a pair of accessory shocks the ET will eat Bonnevilles, Hawks and Daytona Specials for Breakfast, lunch and dinner.

But the 450ET also has its problems. The steering geometry causes you to pass other vehicles so quickly that you can barely savor the moment. Unlike other twins, the ET's lack of engine vibration may lead you to believe that you're doing 40 when you're actually turning 70. The four-gallon fuel tank and 55-mpg consumption figures make it difficult to befriend your local gas station attendant. Also, a jetting change can cause the ET to run in the low 13s all day. The most important problem the ET has is that any trip down a winding road may cause you to laugh yourself into leading people to believe you're incurably happy.

George Goetz
Bronx, New York

Blind faith has been proven lead to eyestrain, you know—ed.

REVISITING THE PUNK

Steve Thompson's "Confronting The Punk" in the July issue was very close to the mark. But there was one scenario he overlooked. As a shirt-and-tie, white-collar biking commuter on the sunny (but overcast) side of 40—okay, 39 to be exact—my confrontations with the people he described are all the more amusing because most of them weren't even alive when I began riding in 1957. I find that if I arrive unshaven and in my grubbies I seldom get this calculated disdain and overt arrogance. But when I appear in business dress with a question about some accessory or part, the attitude is just as the article portrayed it.

Yesterday I stopped at a dealership where I am not known on sight and asked if the new Maxim had arrived and what it was like. Now, I have no intention of buying the cruiser version, but I wanted to know how it was received and to see it for myself. The dealer's rep on the floor—I won't assume that he was a regular sales person—seemed to conclude that I was some sort of closet chopper freak and began a very patronizing, macho number about "working your way up" to an XS1100 Special. His tone made it clear that he wasn't sure that I would ever make it, so the Maxim could be a good place to start/stop. Poor psychology, all in all. As the column conceded, dealers are aware of the type but good help is hard to find.

Pat Halstead
Lynnwood, Washington

LINK WITH THE PAST

Enjoyed your "Shaft Vs. Chain" piece in the August issue. To me, a chain as it is on today's bikes is like the exposed valve springs on an old Manx racing bike. Here are two precision components performing critical functions, yet they are exposed to every hostile molecule and grit in the environment. Had marketing or the mysterious forces that create trends given their stamp of approval to the enclosed drive chain with oil bath, my choice of motorcycles worth owning would have been unlimited. As it is, I refuse to own a modern motorcycle with a final drive from the Dark Ages.

Glenn Garrett
Montrose, California

FROM THE LIGHTWEIGHT SECTOR

This letter is in regard to "The Great Tour-Off" in the August issue. Do your writers (riders) work for BMW and Suzuki? What happened to Yamaha, Kawasaki and the smaller Hondas like the CX500? In truth, I

Continued

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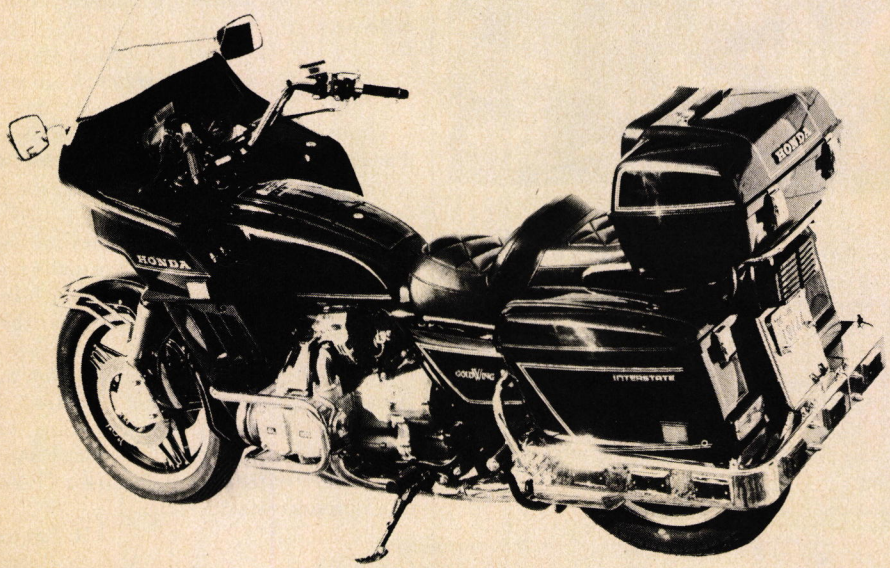

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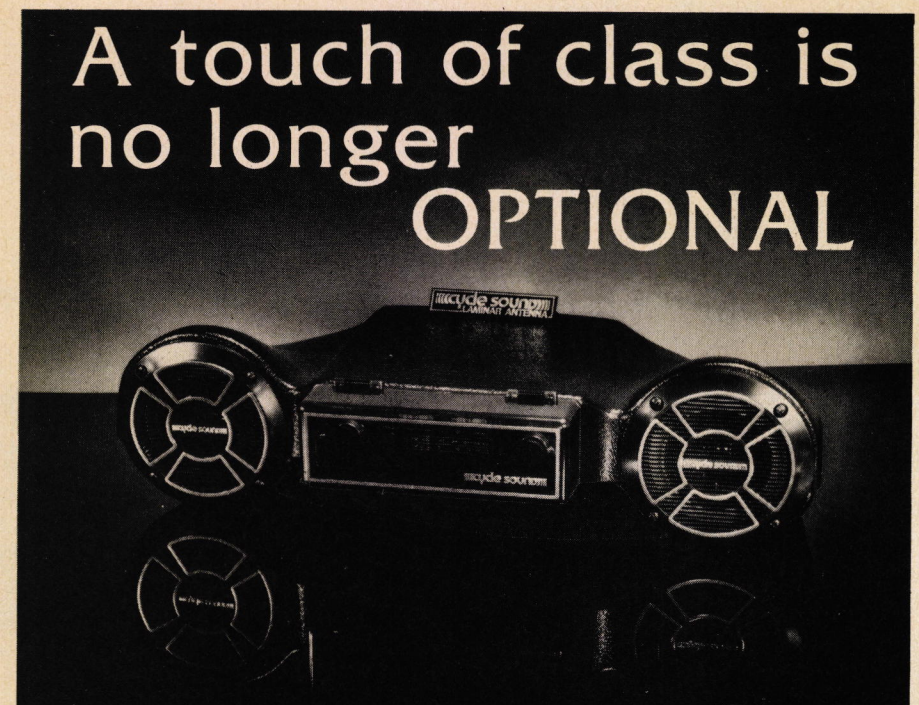

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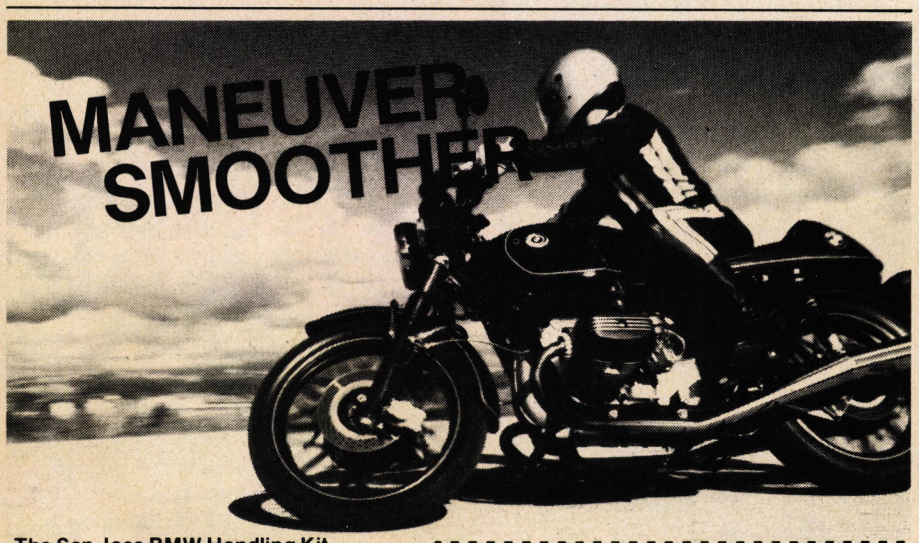

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Today San Jose BMW puts unbeatable control into your hands, with "The Handling Kit". The kit's 6061-T6 aircraft grade Upper Triple Clamp and the San Jose BMW Superbike-replica swingarm modification maximize front- and rear-wheel alignment to give you better cornering control. Additionally, the kit's 6-way adjust rebound damping Koni Shocks are sure to give you the edge. And when you face hard braking conditions, you can rely on the kit's chromed 4-inch front fork bottoming springs to minimize front end dive. Racing or touring, you're on the move. So maneuver smoother with "The Handling Kit". By San Jose BMW. (Fits all 1970 and later BMW's, short- and long-swingarm).

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liked the story, but there's only one of you who really knows what touring means, and that's Michael Jordan. Who wants to ride a 1200-pound bike surrounded by saddlebags, a fairing and a trunk? I mean, you might as well be driving a truck. Just give me a stripper and a country road with nowhere in particular to go.

William McNulty
Beaverton, Oregon

MOTORCYCLES ARE BEAUTIFUL

I knew it was only a matter of time. I'm referring, of course, to Gary Stephenson's letter in the May issue. So, what are you going to do? Blacks have rights too, you know. How about getting a black editor? You could start a new column . . . Bro' Bikes or Soul Cycles. Just think, you could be trendsetters. Stylish. Anyway, you guys better put on the thinking caps. Remember Miami?

Benjamin G. Mobley
APO New York

Say, you are a bit confused, aren't you? This magazine is about motorcycles. Period—ed.

OUTRAGED

Dear CYCLE GUIDE staffers: This is just a personal note to tell you I appreciated your "Great CYCLE GUIDE Tour-Off." It was enjoyable Sunday-morning reading. But, unfortunately, you are all wrong.

Barry Fiegel
Yukon, Oklahoma

We were fools to think we could sneak it by—ed.

I had to write about the "Touring Outrage." It was a total gas. Just two weekends ago my father and I went on a 1500-mile tour. I was on my café 900 Z-1 and he was on his full-dress GL1000. Each of us left for the trip equipped with a separate philosophy of what a good motorcycle should consist of. I was totally stoked to read an article about touring with lightweight, movable motorcycles instead of two-wheeled Cadillacs. *Vive la différence.*

Mike Marcum
Barstow, California

Your August issue really hit home for me. The shaft/chain article was enlightening, but it was the "Touring Outrage" that made me feel good.

I can't count the number of times I've tried to set up the same combination of motorcycle to give me the best all-around touring bike. I loved the piece. Wish I could have been there with my modified Benelli.

I also enjoyed the letters from Bob and Bruce. Sure glad to know that others feel the same way I do about the custom craze. Why are we being punished? I just can't get interested in any of them. Just give me a CB900F or a European Maxim 650. Sob!

J.R. Jamison
Atlanta, Georgia

There, there, just hang on until the new-model introductions. And don't turn to page 42. It'll just make you feel bad—ed. ●

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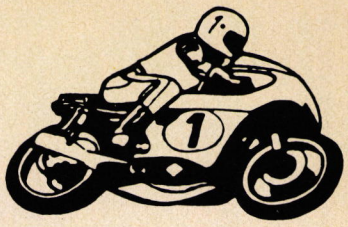

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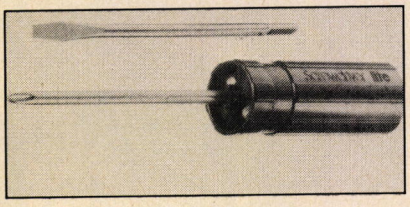
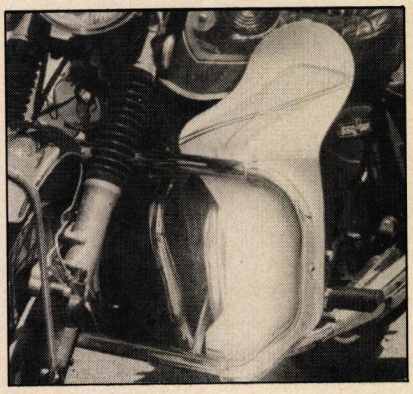
Window shopping by the book

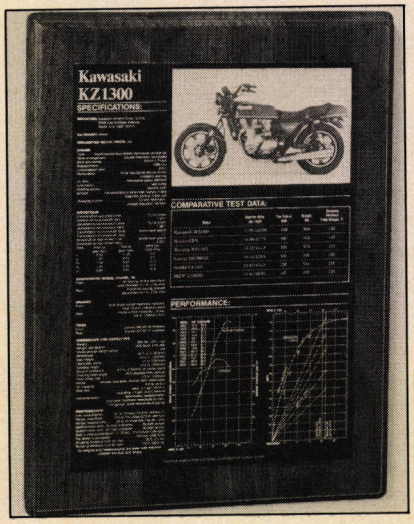
Screwdriver Lite: Breaking down on the road is never any fun. And it's even less fun if it's dark outside and you have to grope at parts as black as the night. Shedding a little light on such situations is Tweezer Lite Co. with its screwdriver fitted with two lights fixed into the base of the handle. This tool is rightly named the Screwdriver Lite, and its manufacturer claims it sheds magnified beams of light right into your work area. Other features include interchangeable Phillips and slotted chrome vanadium blades; leakproof batteries; a power-torque, impact-resistant ABS plastic handle and a lifetime guarantee, excluding bulbs and batteries. For more information contact Tweezer Lite at 558 Lambert Road, Dept. CG, Brea, California 92621. Or call (714) 990-3900.





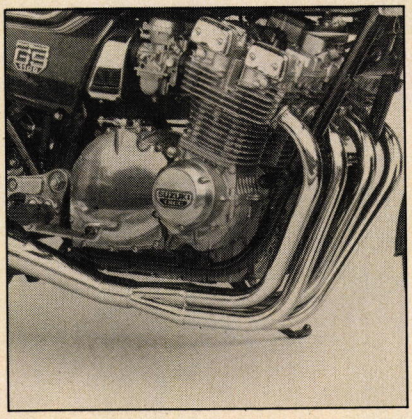
Leg Shields: When rain, wind, mud or bugs overwhelm your legs, you might consider deflecting through Positive leg shields. These plexiglass shields mount to your safety bar with U-bolts. Each tinted shield measures 3/16-inch by 10½ inches by 27½ inches. To get more information on how to de-bug your legs, contact Positive Shields at P.O. Box 176, Dept. CG, Merrick, Long Island, New York 11566. The phone number is (516) 378-1145.

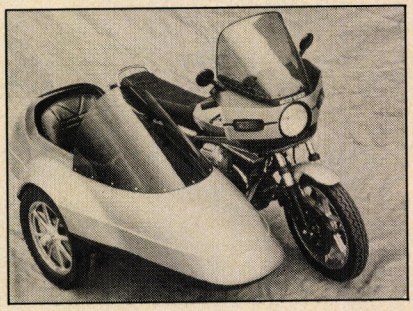
Invisible Windshield Wiper: No one likes to be caught in a downpour, but when it's unavoidable you should improve your visibility. Rain-X and a little foresight could help. Rain-X is a transparent polymer coating that you apply to your windshield, helmet visor or any glass or plastic surface. Its makers, Unelko Corporation, claim the product renders glass and plastic surfaces water- and soil-repellant. You can get a 7½-ounce bottle of Rain-X for $4.00 at motorcycle dealers or hardware stores.



Data-Panel Plaque: A nice momento for any motorcyclist is a black anodized aluminum plaque featuring *Cycle Guide*'s data panel of his bike. Woodland Etchings has 12 plaques available: BMW R100T; Honda GL-1100, CBX, CB750F, CB750K; Suzuki GS1000L; Kawasaki KZ1300, KZ1000 MkII; Yamaha XS1100F, XS1100SG, XS850LG and RD400F. Each plaque is mounted on a solid walnut base measuring six inches by eight inches and costs $25.00. For more information write to Woodland Etchings at 1535 Arch Street, Dept. CG, Colorado Springs, Colorado 80904.

VHR Exhaust: If your Suzuki GS1100 needs even *more* power, or even if you just *think* it does, check this exhaust system from Vance & Hines Racing. The system is claimed to boost horsepower in the mid-range and top end without reducing low-end performance. The claimed result is maximum power for fifth-gear passing on the highway, as well as .4-second quicker ET. All the extra punch is said to come from VHR's twin-flow collector, which is claimed to isolate exhaust pulses to increase gas velocity in the collector. This system is street-legal, chrome-plated and clears the centerstand. For more information contact VHR at 14010 Marquardt, Dept. CG, Santa Fe Springs, California 90670. The phone number is (213) 921-7461.

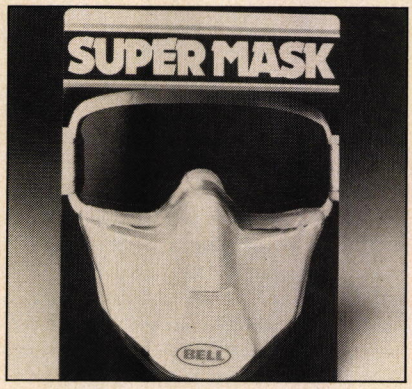




The Third Wheel: Sometimes riding two up just isn't enough. When you want to include an extra passenger, you should look to the California Side Car Company and its Friendship-model sidecar. This design is made of fiberglass and fits any motorcycle 500cc or larger with a tubular frame. For those of you of the stretched persuasion, the Friendship will accommodate a passenger up to six-feet, four-inches in comfort, according to claims; the upholstered seat hinges forward for storage. The Friendship also features wall-to-wall carpeting, a wrap-around windscreen, mag wheels, taillights and torsion-bar suspension. The folks at California Side Car say that it takes 10 minutes to detach the Friendship for those times when you feel like being alone. For further information, contact the company at 1630 Oregon Ave., Dept. CG, Long Beach, California 90813. The phone number is (213) 432-8880.

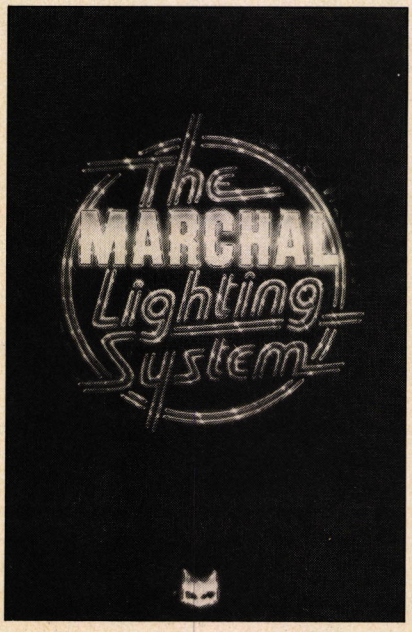
Kal-Gard Fork Oil: If your fork has lost its bounce, maybe it's time to ponder the advantages of Kal-Gard Smooth Stroke. The new slippery stuff is claimed to reduce the friction within your motorcycle's suspension system, resulting in a smoother ride and less wear. Smooth Stroke is available in five weights for most motorcycle applications. For more information contact a Kal-Gard dealer or write to Kal-Gard at 16616 Schoenborn Street, Dept. CG, Sepulveda, California 91343.

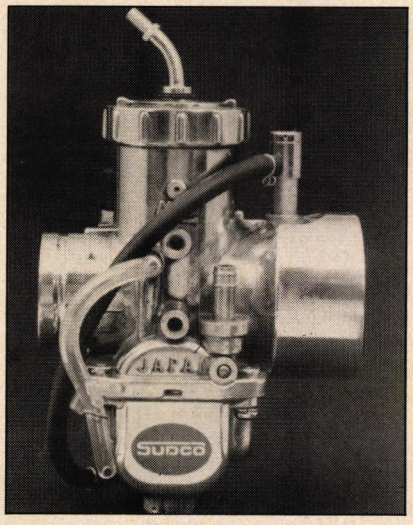
Super Mask: There are things worse than a mouthful of dirt and rocks. But not many. A faceful of grit can put you into something hard and unyielding, and at speed that can be more than distracting. To the rescue is Bell's Super Mask, constructed of plastic and shaped to fit a face. The mask clips on to Bell goggles and is available in black or white. For more information, contact Bell Helmets at 15301 Shoemaker Avenue, Dept. CG, Norwalk, California 90650. Or call (213) 921-9451.



Police Action: If it's heat you want, consider Esprit's police-style jacket: It features extra-length back and sleeves to prevent the dreaded air leak while you're riding. A breast pocket inside and zippered pockets outside make storing your badge and billy club a snap. The Esprit police jacket is made from textured polyurethane and costs $49.95. For more information write to Esprit at 1511 Alum Creek Drive, Dept. CG, Columbus, Ohio 43209.

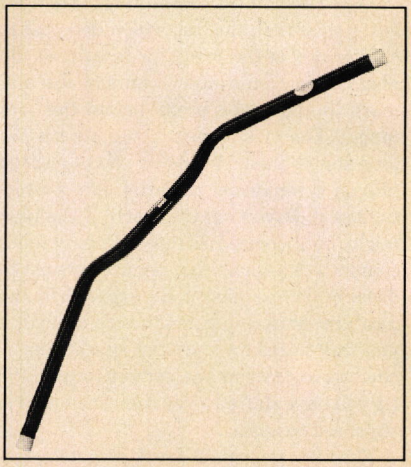
Bike Lighting: *The Marchal Lighting System* might not be on the best-seller list, but if you're in the market for a headlight for your motorcycle, it could be the best book for you. The 16-page, color brochure features the entire line of Marchal lighting products. For your copy, send $2.00 to SEV Corporation, Marchal Division, 33203 Harper Avenue, Dept. CG, St. Clair Shores, Michigan 48082.





Mikuni Power Jet: Power fanatics should be interested in Sudco's Mikuni Power Jet carburetor and kit. Sudco claims it provides a precisely metered amount of fuel flowing throughout the motorcycle's entire power band. Through metering a measured amount of fuel from the float bowl at low-speed wide-open-throttle to high-speed wide-open-throttle, the power jet is claimed to provide optimum fuel mixtures at partial throttle openings as well. To find out more, contact Sudco at 1824 E. 22nd Street, Dept. CG, Los Angeles, California 90058.

Super Bars For Superbikes: Superbike owners interested in low, sporty handlebars should check this GP Touring design from Superbike Bars. This is just one in a line of six handlebars designed for street and track enthusiasts; they are available in chrome or black chrome. The folks at Superbike Bars claim their bends are used by roadracing pros Freddie Spencer of Team Honda, Wes Cooley of Team Yoshimura/Suzuki and Eddie Lawson of Team Kawasaki. Superbike Bars range in price from $15.95 to $26.95. For more information, contact Rudy Galindo at Superbike Bars, 561 Iowa Avenue, Dept. CG, Riverside, California 92502. You can call Rudy at (714) 682-8813.



Techspeak

Breaking the Spark Plug Cipher

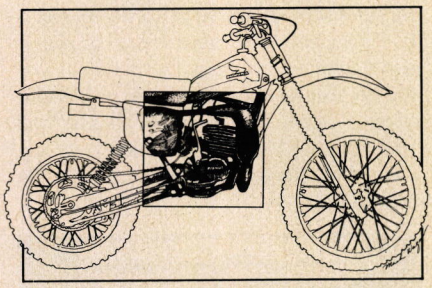
All it takes is a magic decoder ring

• Chances are, you do not know what type of spark plug is fitted in your motorcycle's engine. Don't be embarrassed to admit it; you are in the vast majority of riders. The improved reliability of modern spark plugs allows us to almost ignore them. But unfortunately, it has also allowed us to become ignorant about a very important item.

This state of affairs is a long way from the days when a motorcyclist knew his sparking plugs on first-digit terms, a relationship fostered by regular failures and constant replacements. Perpetual involvement led to a familiarity with a limited range of spark plugs that, just like the engines of the time, were relatively unsophisticated. All the same, if you want to understand the spark plug in your modern motorcycle, you will have a difficult time. Today's spark plugs are just as complex as the engines. And the increased sophistication has led to a bewildering array of variations. Spark plug manufacturers further confuse the issue with bewildering identification systems. No wonder shade-tree mechanics become perplexed when confronted with a BP-7ES, N9Y, AG32B and W225T2—all of which are interchangeable.

Despite the seemingly unrelated designations of the modern spark plug, you can learn to understand it. The secret lies in the fact that the manufacturers' codes relate to some common features. Essentially, the codes identify three dimensions: thread-size, reach and heat range. This is the place to start if you want to learn how to sort through the spark plugs at your local motorcycle shop.

Thread size normally is indicated by the first letter in the code. The most common size in motorcycles by far is 14mm, although Honda uses 12mm plugs. The first letter after the numeral, which determines heat range, is the reach, or length, of the plug (Champion combines thread-size and reach in a common prefix before the heat range). The most common reaches are ½-inch and ¾-inch. Whenever you fit a spark plug, it is important that you do not overtighten it. If you do, the reach of the plug might be increased slightly as the washer compresses, which could cause a hot spot to develop on the plug body exposed in the combustion chamber. On the other hand, if you fail to insure that the spark plug is cinched in place at the correct torque, the tip will have shifted away from the fuel it is supposed to ignite.



The most important spark plug measurement is heat range. It is usually indicated by the number in the middle of the code. Heat range actually describes how quickly heat is dissipated from the center electrode to the cylinder head. And there is a lot of heat transferred from the combustion chamber to the tip of the plug that must be dealt with. Temperatures can easily reach 4500 degrees F, and enough of that must be thrown off to avoid melting the plug's center electrode. Yet if too much heat is transferred, the electrode might be too cool to burn off deposits that build during low-speed running.

The spark plug companies themselves usually determine what heat range is best for a particular brand of motorcycle. Using special plugs equipped with thermo-couples, they measure electrode temperatures over a wide range of operating conditions. Thus they can select a heat range that remains hot enough during stop-and-go riding to consume oil and fuel deposits yet is capable of dissipating enough heat at high speed to prevent the electrode from melting. The two temperature extremes are normally 840 degrees F and 1740 degrees F, and under most circumstances the plug manufacturers make the right choice. That is why we rarely have to attend to spark plugs these days. If an engine is modified, however, or if riding conditions deviate from the norm, you might need a different plug. And that is when the ins and outs of heat range become important.

The harder an engine works, the more heat it will produce. The heat must be compensated for by a spark plug that runs cooler in order to avoid electrode damage. The spark plug companies confuse the issue because they use different ways of indicating a change in heat range. Nippondenso, Bosch, KLG and NGK all denote colder plugs with ascending numbers. On the other hand, Champion, AC and Autolite use decreasing numbers. So a Nippondenso W27ES is colder than a W22ES, and a Champion N2 is colder than an N3. No matter how your riding habits might vary from a motorcycle manufacturer's expectations, though, you should rarely need to change the heat range of your spark plug by more than one level. And you must understand the way your spark plugs' manufacturer organizes heat range, or the consequences could be continually fouled plugs or, worse, melted electrodes.

The spark plug manufacturers themselves minimize these problems with center electrodes made from precious metals. The type of material used in the electrode as well as its shape is shown by the final letter of most plug designations. A precious-metal center electrode withstands higher temperatures and resists corrosion better than a common steel one. As a result, such an electrode can cope with a wider heat range while lasting longer, properties that compensate for the higher cost of the plugs. The material itself varies from Bosch's alloy of nickel, manganese, chromium and silicon to Champion's platinum or iridium.

The final letter of the plug designation can also refer to the type of ground electrode used. Because it, too, must withstand very high temperatures, the ground wire also is made of special materials. In addition, it is mounted in different positions or even constructed in different shapes to suit the specific needs of a particular heat range.

The most common ground electrode is a simple piece of metal of square cross-section bent over from the plug body. Ground electrodes might either completely cover the center electrode, half-cover it or not cover it at all. Nippondenso provides a further variation with its "Hot U," which describes a ground electrode made from metal with a U-shaped cross-section. Even more unusual are plugs with recessed center electrodes, commonly called surface-discharge plugs, in which neither the center electrode nor the ground electrode extend beyond the base of the plug body. Because of the heat developed in the combustion chamber, a racing-type plug also features a recessed center electrode. It has a ground electrode within the plug body, between the center electrode and the side of the body itself.

Given the reliability of modern spark plugs, this overview of plug decoding might not prove as useful next week as it would have 20 years ago. Even so, when the guy on the other side of the parts counter hands you a new batch, at least you'll know what you're getting.

—David Dewhurst

GUIDE LINES

Cycle Guide's Monthly Chronicle of Scoops, Tips, Rumors and Hard Facts

BY LARRY WORKS

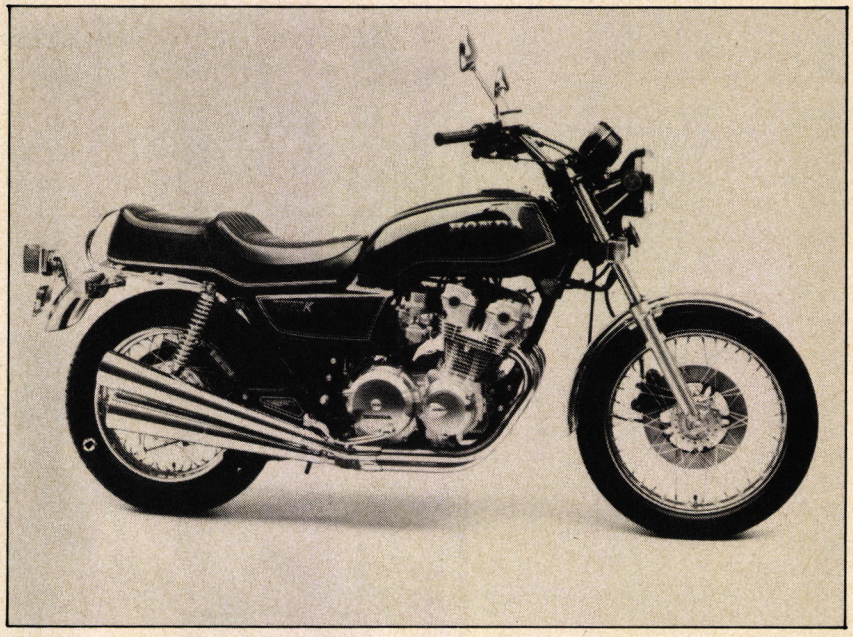
COMING SOON: Honda's 1981 Lineup

First volleys in No. 1's new-model battle plan.

• The scent of conflict is in the air. While everyone's waiting in anticipation for the outbreak of the new-model wars, there have already been a few skirmishes. Honda, for instance, has already mobilized, and began the 1981 escalation with a squadron of seven early-release motorcycles. Heading the list is the restyled CB750C (Oct. 1980 issue), which is backed up with a new K-model, a trio of CM400s, a step-through 72cc Passport and the redoubtable ATC200.

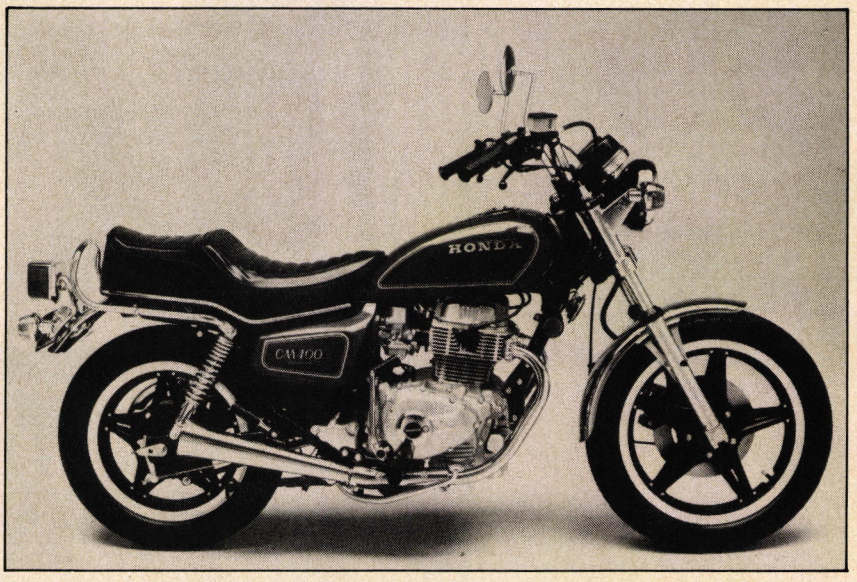
Most early-release bikes are, by and large, simply remodeled versions of existing machines, but the Hondas show a few more changes than just new paint. For instance, the new K-model followed the 1981 C's lead and will run Variable Hydraulic Damping rear shocks instead of the FVQ variety, a vacuum-operated fuel valve with petcock and instruments whose translucent faces make for easier nighttime reading. Night tactics also should be somewhat clearer with the K's new seven-inch halogen headlamp. A non-leading-axle air-spring fork and new upswept exhaust pipes are also standard issue this time around.

The 400s, too, show the effects of some attention beyond simple paint and tape. Besides the nightlight instrumentation on the T- and A-models, black ComStar wheels shod with tubeless tires are part of the package, as are air-spring forks. The cannon-fodder E-type misses out on these changes and will continue in its role of the basic motorcycle. The same could also be said of the Passport, which might have had a new lick here and there but is still the kind of motorcycle you meet the nicest people on. Some refinement did come to the ATC, though, which for 1981 has a new air intake design, drilled skid plate, new tires and rectangular headlight.



CB750K acquires air-spring fork and halogen headlamp for '81

Doling out all the new tricks to the poor relation of the 750 lineup.



Honda's Custom look gives black wheels, two-tone paint and trick dials to CM400A

Becoming the best-looking, best-riding 400 thanks to air-spring fork.

These early models will have to hold the fort until the big guns sound again, but that shouldn't be too long. The rest of Honda's lineup is reportedly set to march into the fray that the 1981 sales year promises to be.

—Larry Works

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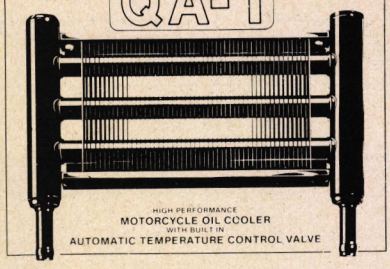

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H-5T	CB 400 T	$79.95
H-6T	ATC 90-110	$79.95
	YAMAHA	
Y-1T	XS 1100	$79.95
Y-2T	XS 750	$79.95
Y-3T	XS 650	$79.95
Y-4T	SR 500	$79.95
Y-5T	TT 500	$79.95
	KAWASAKI	
K-1T	KZ 900, 1000, ZIR	$79.95
K-2T	KZ 650	$79.95
K-3T	KZ 1000 ST/'79	$79.95
	SUZUKI	
S-1T	GS 550,750,850,1000	$79.95
S-2T	GS 1100	$79.95
	BMW	
B-1T	R75/6,R90/6,R90/S R75/7,R100/7,R80/7	$79.95
B-2T	R100/S	$79.95
	MOTO GUZZI	
M-1T	850-T3, GS 1000	$79.95
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CG

COMING SOON:

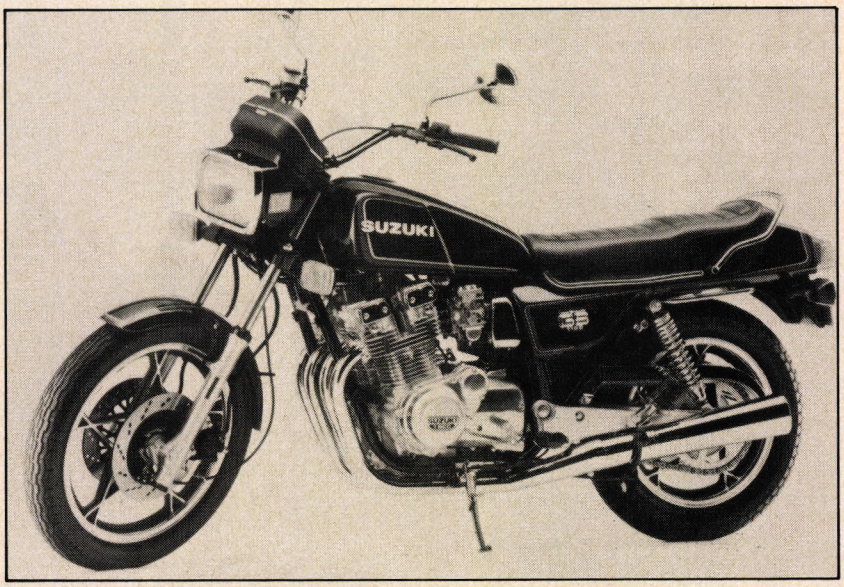
Suzuki For 1981

X marks the spot.

• Suzuki also has shown interest in a little preemptive model releasing. Thirteen of Suzuki's X-models have hit the dirt and street early in an effort to lock up 1981 sales in the lull before the sales storm. These early-release street bikes include the GS1100EX, GS250TX, GN400TX and XX, GS450EX, LX and SX. For the playbike and dual-purpose market the early bikes include the DS80X, DS100X, TS100X, TS125X, TS185X and the TS250X.

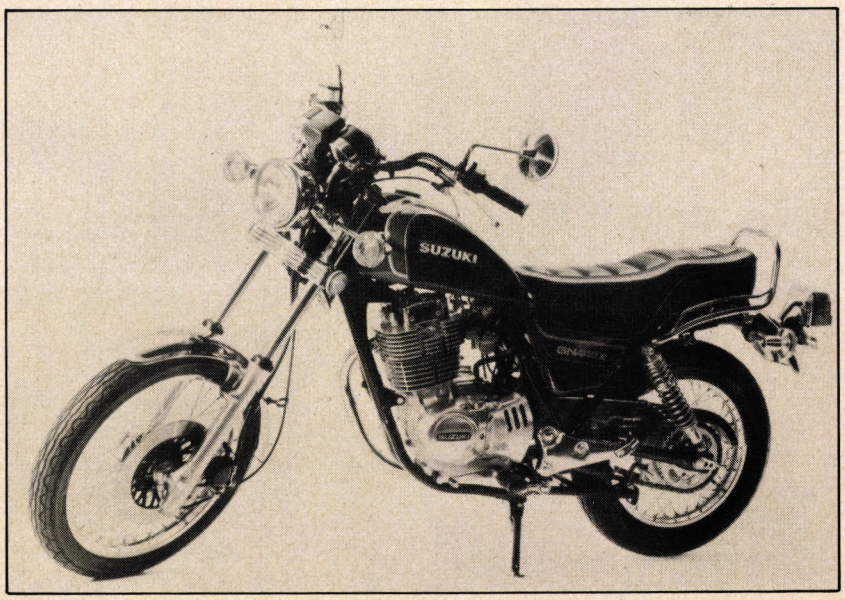
With little more than modifications of the graphics, the newest X-bikes are proof that motorcycles really can change their stripes overnight. But some detail changes beyond color were made to the flagship GS1100. For 1981, the hyper-bike's turn signals will also function as running lamps and the instrument-cluster selfcheck system will include a sidestand position indicator.

—Larry Works



The 1981 GS1100EX, Peak of the Performers with different stripes, same speed

Adding a kickstand warning indicator to the check panel display.



Bargain basement GN400XX with spoked wheels, leading-axle fork, civilian handlebar

The XX label tells you it's brewed for the $2000 market.

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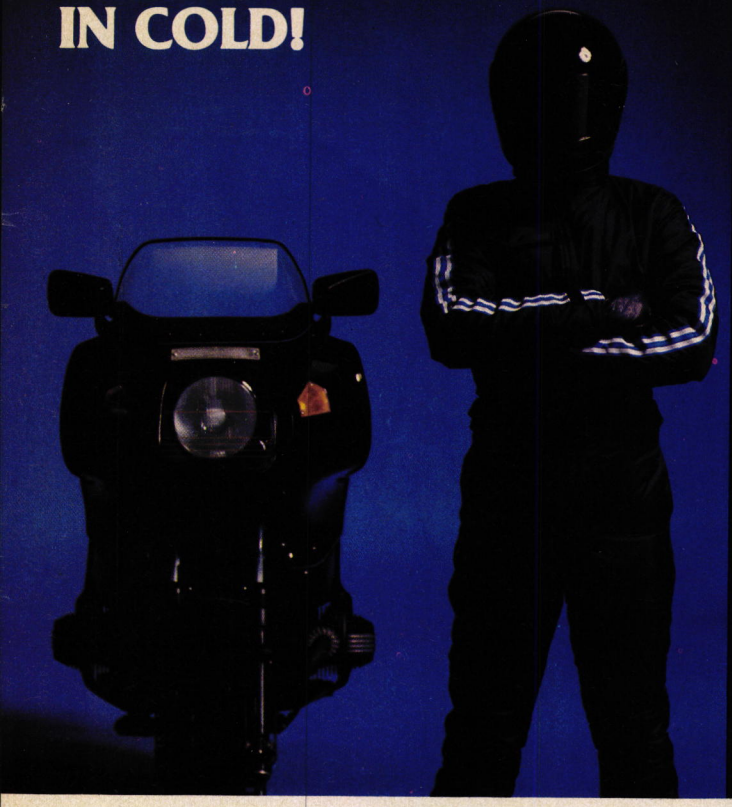
WORTH ITS WEIGHT IN COLD!



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COMING SOON

• Listen up out there. A motorcycle billed as the world's **fastest production bike** leads off the grist this month. Honda has seen fit to borrow some thinking from its F1 endurance racer to produce what just might be the ultimate street machine. Got your attention yet? Read on. The **CB1100R** displaces 1062cc and produces a claimed 115 high-compression horsepower. The bike might have had its beginnings in the CB900F, but the F was never like this. The 16-valve 512-pound UltraHonda is said to turn in a top speed well in excess of 145 mph. This limited-edition wonder—a full production run of less than 1000 is expected—carries a pricetag that stretches the tape at a shade over $8000. And now for the inevitable fall from the heights. Honda's street missile is yet another in the growing list of Europe-only motorcycles.

• There's been a great deal of heat rumored on vee-configured Yamahas, but up to now there hasn't been much light. Get set to shield your eyes. While it could be that there are other vees lurking up Yamaha's corporate sleeve, this much is certain: One of the new bikes from **Yamaha** for 1981 will be a **900cc** inline air-cooled **vee-twin** with chain-drive. And you can ride this one to the bank.

• Other rock-hard information that's just turned up comes by way of Suzuki. As rumored in this magazine nine months ago, **Suzuki** has produced a **16-valve** shaft-drive 650 for a confrontation with Yamaha.

• And from **Kawasaki** there is also some solid news. Count on two new 1089cc street bikes to be part of Kawasaki's lineup. To start off, there's a touring-oriented 11 with a mild cam and rubber-mounted shaft-drive engine. An air-spring fork and fully adjustable shocks should qualify it as near state of the art in ride quality. Then, for a somewhat more spirited treatment, there's a chain-drive sport version based on the same engine. Eight **big valves** and a more radical cam are said to be responsible for a plus-115-horsepower rating, while a dramatically low running weight and all-new frame and suspension pieces are said to escort the bike into low-11-second quarter miles.

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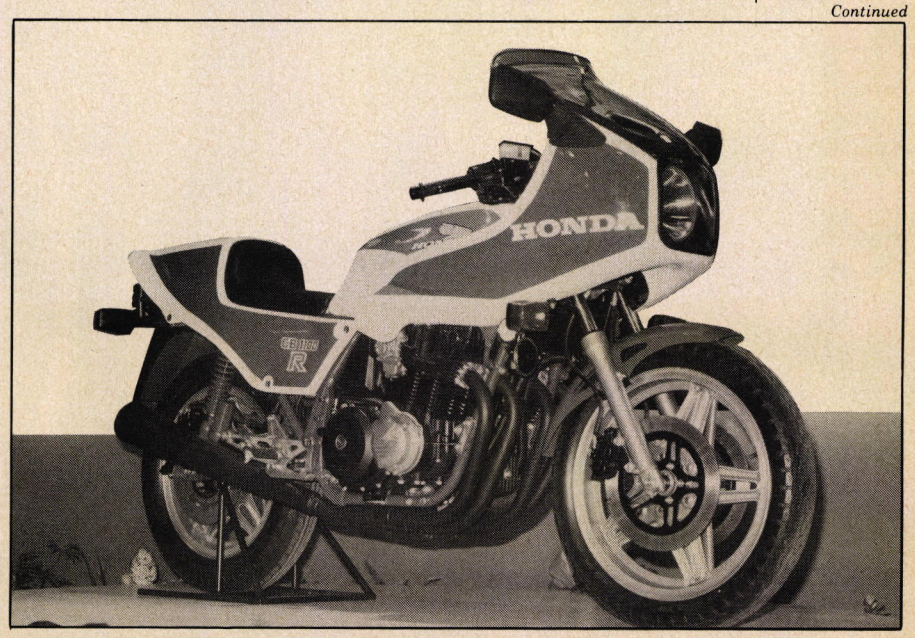


Honda enters limited-edition market with 115-hp, 145-mph lightweight CB1100R

Look, want, imagine—but don't touch.

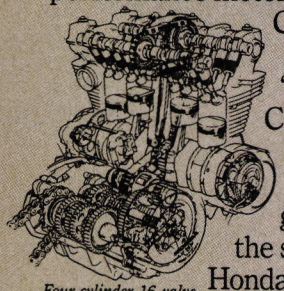
It is one thing to meet a performance standard.

And quite another to be one.

How many times have you heard other high performance motorcycles compared to the Honda CB750F?

"It handles like a CB750F." "...Nearly as quick as the CB750F." "In a class with the Honda CB750F."

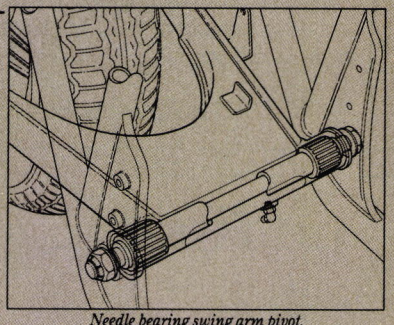
Well, for all those who are going to try once again to meet the standard set by the CB750F, Honda has some bad news. This year this motorcycle is better than ever.



Four-cylinder, 16-valve, double overhead cams.

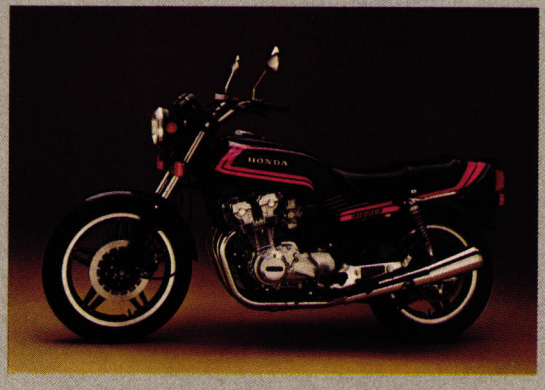
New for 1981 are larger 37 mm air adjustable front forks. Wider than ever tubeless tires mounted on wider than ever ComStar™ wheels. And VHD™ shocks which are adjustable to a full 30 preload/damping settings. So what has often been called the world's finest handling motorcycle is better than ever.

Power is by Honda's race bred 16-valve, DOHC, Pentroof™ head four-cylinder marvel. Fed by four 30 mm CV carbs. And fired by maintenance free transistorized pointless inductive ignition. An engine so advanced that it is the heart of Team Honda's very successful superbike road racers.



Needle bearing swing arm pivot.

New lightweight, dual piston, slotted front disc brakes operated by a new lightweight master cylinder provide the stopping power you'd expect from this kind of high performance machine.



And performance detailing is complete right down to the unique spoiler front fender.

With all that going for it, you can see why this motorcycle has so many imitators.

But stop for a moment and consider. Why should you own a bike that might be as good as the CB750F, when you can own the real thing?

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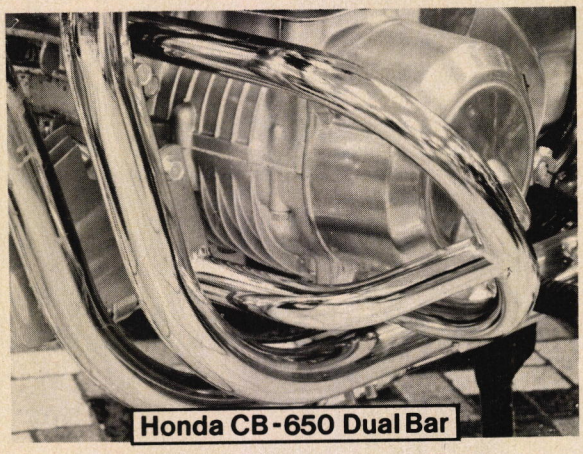

Honda CB-650 Dual Bar

The new line of GSM Casesavers are out. Each one is specially designed for a specific bike, so you know it closely follows the contours of the motorcycle engine, tucks in nicely and is a snap to install. Many insurance companies will give a 10% discount to street riders who install GSM Casesavers. This savings results in the casesavers paying for themselves in one year!* See your local dealer who carries GSM parts about this money-saving deal. *average savings is $25.00 per year.

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CUSTOM BIKE magazine, August 1980

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FEDERAL CASES

• Ever pay much attention to politics? Maybe you should. There's at least one plank in the current **Republican** platform that's worth noting—the one that would do away with the "counterproductive" 55-mph national speed limit in favor of letting the individual states set their own **speed limits.**

• That begins to sound as if the federal government is nearing the right track. Here's another giant step in the right direction. A federal transportation panel recently recommended what motorcyclists have been urging for years, that **fuel-efficient** vehicles be allowed a **speed limit** of up to **70 mph.** The panel's plan is to identify fuel-efficient vehicles (all vehicles that produce 25 percent better fuel-consumption figures than the national average) with day-glow license plates, then allow them to travel at highway speeds beyond the national speed limit instituted in 1974. Looking past the immediate attraction of freedom from the double nickel, the plan shows some sound thinking. It is projected that the plan would speed up a shift to energy-efficient vehicles, producing an overall saving in fuel and a lessened dependence on foreign oil.

• Not bad. Motorcycles are turning up in ever-increasing numbers in government efficiency plans. Like, for instance, a new Department of Energy directive. The directive requires federal agencies to implement energy-saving measures—including motorcycle use. According to the directive, some of the perks for **bureaucrats on wheels** will be secure parking areas, and lockers and less-restrictive dress codes to allow for riding gear.

• MIC intervention seems to have cushioned some of a Bureau of Land Management blow to off-road vehicle operators. The original version of some **BLM** regulations would have required ORV operators to have a driver's **license,** learner's permit or to be under the direct supervision of someone 18 or older. The revised version after the MIC had its say requires a license only when federal or state law requires it.

• Until recently, a 1972 **California** law prohibited any change to a motorcycle's **exhaust** system unless the resultant system was at least as quiet as the stocker. The **law** has been **overturned** and the situation has changed somewhat. But the noise levels probably won't be rising too much, since the new law will allow louder-than-stock exhausts—but only as long as the final decibel output falls within legal limits.

• While noise promises to be a growing issue on the state level, the hottest subject for debate these days is—you guessed it—**helmets.** For example, an Idaho bill took a novel approach to the unprotected-riders-are-costing-the-taxpayer dogma. HF2104 would have required that Idaho motorcyclists without satisfactory **insurance** be required to wear helmets. The bill died.

• And in **Michigan** the helmet question is also still alive. The problem there is whether or not individual **municipalities** have the authority to require that riders wear helmets

Continued

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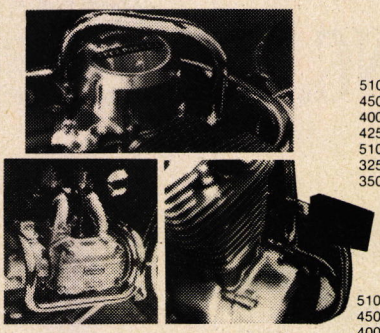

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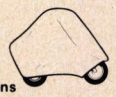

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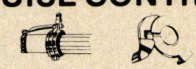

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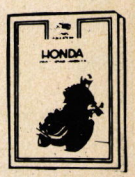

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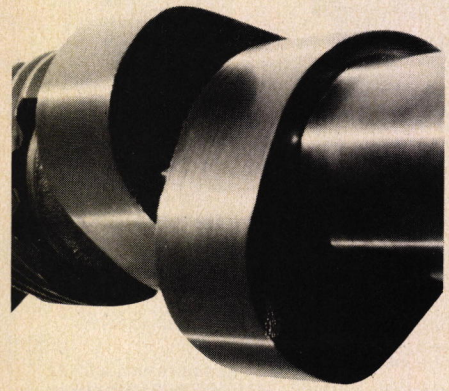

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RIDE/REPORT: Cagiva WMX125

Production watercooling for a ride on the wave of the future.

• The unveiling of watercooled factory 125cc motocross machinery at this year's Nationals had rumors of radiator-clad production bikes circulating like a Gatorade bottle on a hot day. Speculation centered on which of the four Japanese manufacturers would release a waterjacked wonder to the public first. Surprisingly, the big factories have been beaten to the punch by both Derbi (July '80 issue) and Cagiva.

In its first appearance stateside the Cagiva WMX125 performed well, placing fourth in the 125 USGP with LOP pilot David Taylor at the controls. Taylor later commented that the Cagiva's power was world-class but the handling was "different." A day of putting the 'pumper through its paces confirmed his assessment.

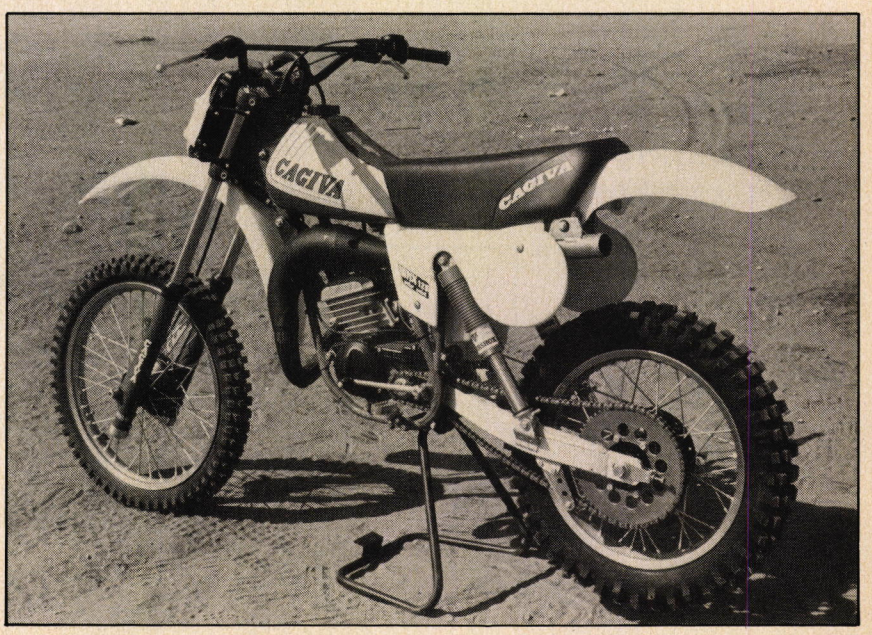
The watercooled, oversquare 56mm x 50.6mm, 125.6cc engine is of course what's stirring up the interest about the Cagiva. Water circulates between the radiator, jacketed barrel and cylinder head with the aid of a pump bolted at the right side of the engine. Although Cagiva engineers made an effort to use the frame tubes as water passages whenever possible, five separate hoses were needed to circulate the cooling fluid—two of which seem open to crash damage.

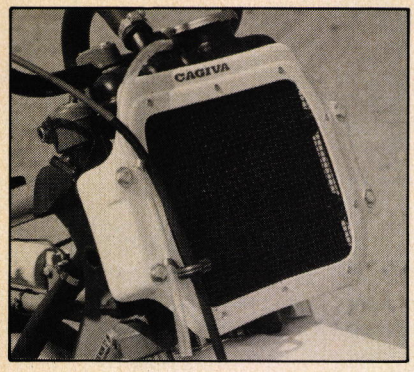
A 34mm DellOrto carb feeds the engine through a six-petal reed valve, while ignition is handled *via* CDI with no apparent

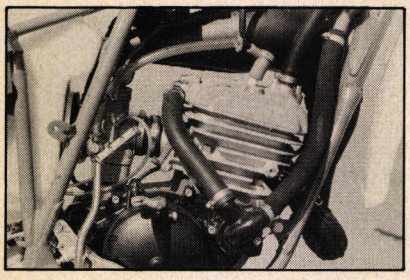
CAGIVA WMX125

Importer: Slater Bros.
P.O. Box 746
Kenwood, California 95452

Suggested retail price	$3000 (approx.)
Engine type	two-stroke vertical single
Port arrangement	one reed-valve-controlled intake
Bore and stroke	56mm x 50.6mm
Displacement	124.6cc
Carburetion	one 30mm DellOrto slide/needle
Gearbox	6-speed
Front fork/wheel travel	Marzocchi air-spring/ 11.0 in. (280mm)
Rear shocks/wheel travel	Works Performance/ 12.2 in. (310mm)
Wheelbase	57.5 to 58.5 in. (146 to 149cm)
Seat height	38.0 in. (965mm)
Weight	192 lbs. (87kg)







rpm limiter. Power never seems to peak on the wetbike, and the rider can make good use of the high revs by shifting less on short straights. The bike's strong acceleration is on a par with modified Japanese bikes, but the Cagiva's strength is confined to the upper rpm ranges.

As evidence of Cagiva's intent to sell more than a token number of the WMXs in the American market, the bikes will be shipped minus rear shocks and Works Performance units will be fitted on arrival. Rear-wheel travel with the WP suspenders in place is 310mm, and control at the back end is excellent, allowing the marginal Pirelli tire to find traction even when crossing stutter bumps.

Unfortunately, the action at the fork proved to be as frustrating as the rear-wheel movement was satisfying. The spindly 35mm Marzocchi fork is oversprung and underdamped, and conspired with the weight of the radiator mounted behind the number plate to make steering the WMX125 a handful. Oversteer was a consistent problem when using berms, and the front tire wanted to push on every smooth inside line. Reportedly, plans are being considered to remedy the Cagiva's forking peculiarities by going the same route as the shocks and fitting a non-Cagiva suspension piece. Talk was made of equipping the WMX125 with a Simons fork.

A six-speed gearbox, box-section aluminum swingarm and Magura controls attest to Cagiva's aim at the American buyer, although with an estimated price of nearly $3000 the WMX125 won't make a major dent in the 125 market. But until Japanese production waterpumpers find their way into dealer's showrooms, the Cagiva is guaranteed a few holeshots—and a large share of attention. —*Terry Whytal*

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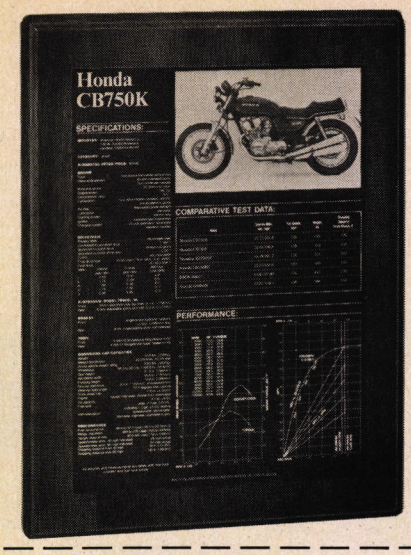

CYCLE GUIDE

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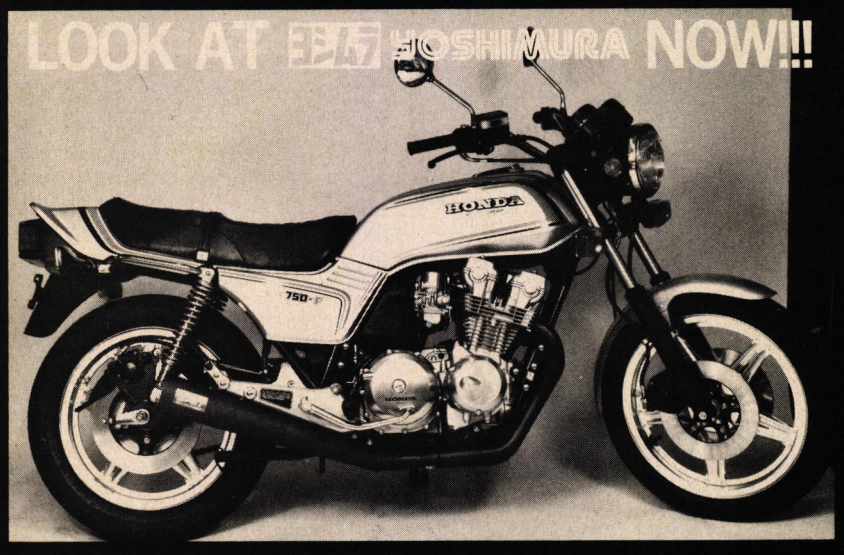

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GUIDE LINES *Continued*

within city limits. If HS4497 passes, the cities will lack the necessary clout.

• Jumping over to the same issue in Pennsylvania, SB8, if passed, would **repeal** that state's mandatory **helmet** requirement for riders over 18 years old. A similar bill in Rhode Island, HB2514, would rescind the helmet **requirement** for riders over 21 in that state.

HARD CASH

• The soap opera at the **Meriden** Cooperative seems to be playing out its last act. The latest word is that Armstrong Equipment will not take over Triumph's **sagging** financial reins. Reports show that the British government refused to cancel interest and debts incurred by Triumph in a 1974 monetary reshuffling.

• Could we have a little wry humor over here, please? Federal regulations require that all new vehicles sold in the U.S. in 1985 must average 27 mpg. Failure to meet the minimum average fuel economy will result in a sliding-scale **fine** that has to be paid when the vehicle is purchased. According to some recent estimates, some of the lowest-mpg gas-guzzlers will carry fines of nearly **$4000.**

• Didn't that make you feel better someplace down deep inside? Here's something to continue the roll. It looks like sidehack fans will be pocketing a few more quarters, according to a report by the United Sidecar Association. USA's report shows that all states that had discriminatory **toll** policies for sidecars have changed their ways. From now on, **sidecars** won't be charged a toll rate based on having three axles.

• The news seems to be just as good for fanciers of **motorcycle** safety programs. A new MSF study shows that state highway **safety** offices spent 58 percent more for motorcycle safety programs in 1979 than they did in 1978. The study also predicts that 1980 will be a boom year, with a 42 percent jump in motorcycle-related safety **expenditures** over 1979. But just so you don't go away with the feeling that everything is going to get better by and by, consider something else that the study revealed: In 1979, 18 states planned no funding for any motorcycle programs.

• With 1980 almost over, the **1979** votes finally have been counted. The envelope, please. 1979 was the biggest year for motorcycle **sales** since 1974, with more than 1.1 million new bikes sold.

• Sort of makes you wonder what would happen if you continued to put bikes on the street until they began to displace cars. And if you are wondering about a future in which motorcycles played a heavier role, the MIC has some interesting statistics. Widespread use of motorcycles for **commuting** during good weather would shrink the nation's oil imports by 8.2 percent, gasoline consumption would drop 10.2 percent and dependence on **OPEC** imports would sink 11.7 percent. So much for the good of the country. For the good of the individual, the real dollars and sense come into play. The MIC study shows that riding instead of driving on a 15-mile daily trip could be good

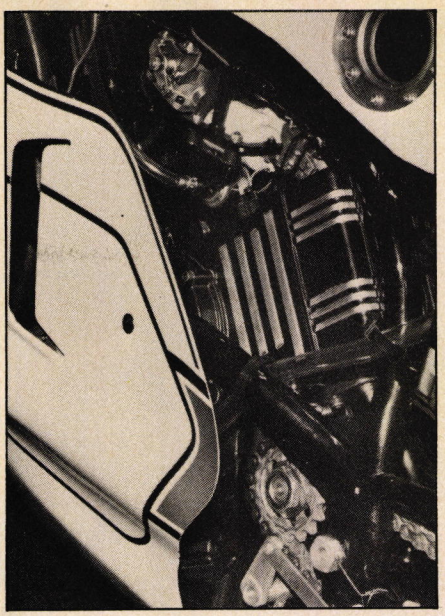
for an annual saving of $350–$500, depending on local gas prices.

• It's also likely that an influx of street bikes is in part responsible for the fact that U.S. **demand** for gasoline is down about eight percent over last year's figures. But don't pat yourself on the back quite yet. You should know that all those efforts to cut down on **gas** consumption are likely to be rewarded—with an increase in the federal gasoline tax. Because of **declining** fuel consumption, the federal highway trust fund is about $2 million in the hole.

• All of which might lead you to the last item. If you thought the rising cost of just getting around was one of your major financial worries, you've been missing the point. A U.S. Chamber of Commerce report shows that **transportation** costs from 1976–79 rose 32 percent. During the same period **taxes** climbed 37 percent.

RUMORS

• With the new-model introductions going on even as you read this, the rumor mill has been grinding full-time to crank out as many tales of the could-be before they turn real. One of the most popular and oft-told stories is a one-more-time on that supposed hyperbike **vee-four Yamaha.** Sometimes you just don't know who to believe.



Sneaky snap of Yamaha's V-4

New vibes from the Tuning Fork.

• Like, for instance, those staunch supporters of the notion that **Yamaha** will plug up a 500-multi hole in its lineup with something completely unexpected. Not with a Maxim-derived 500 four but with an **all-new** 500cc vee-four. Well, you can't blame them for hoping.

• But while vees are presently collecting most of the attention at the Tuning Fork Factory, over at **Honda** the word is something different. The mill is all a'twitter about the possibilities inherent in turbocharging. What was first suspected to be a rethought, reengineered version of the CX500 with a **blower** attached is now thought to have a couple more cylinders—lined up in a row. All those rumors that Honda would resurrect the CB400F in a 500cc format have jelled with the talk of turbocharging into the shape of an unconventionally aspirated street rocket that puts out more than **65 horsepower.**

• Well, maybe. But if there is a turbo Honda lurking in the shadows, the chances are that it won't be out right away. Which leads to another Honda tale. One of the most prevalent

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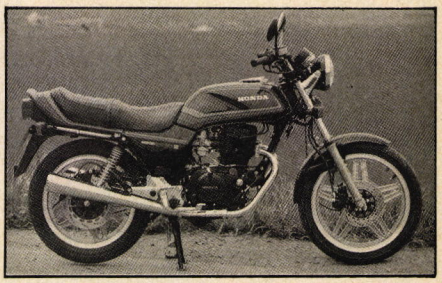
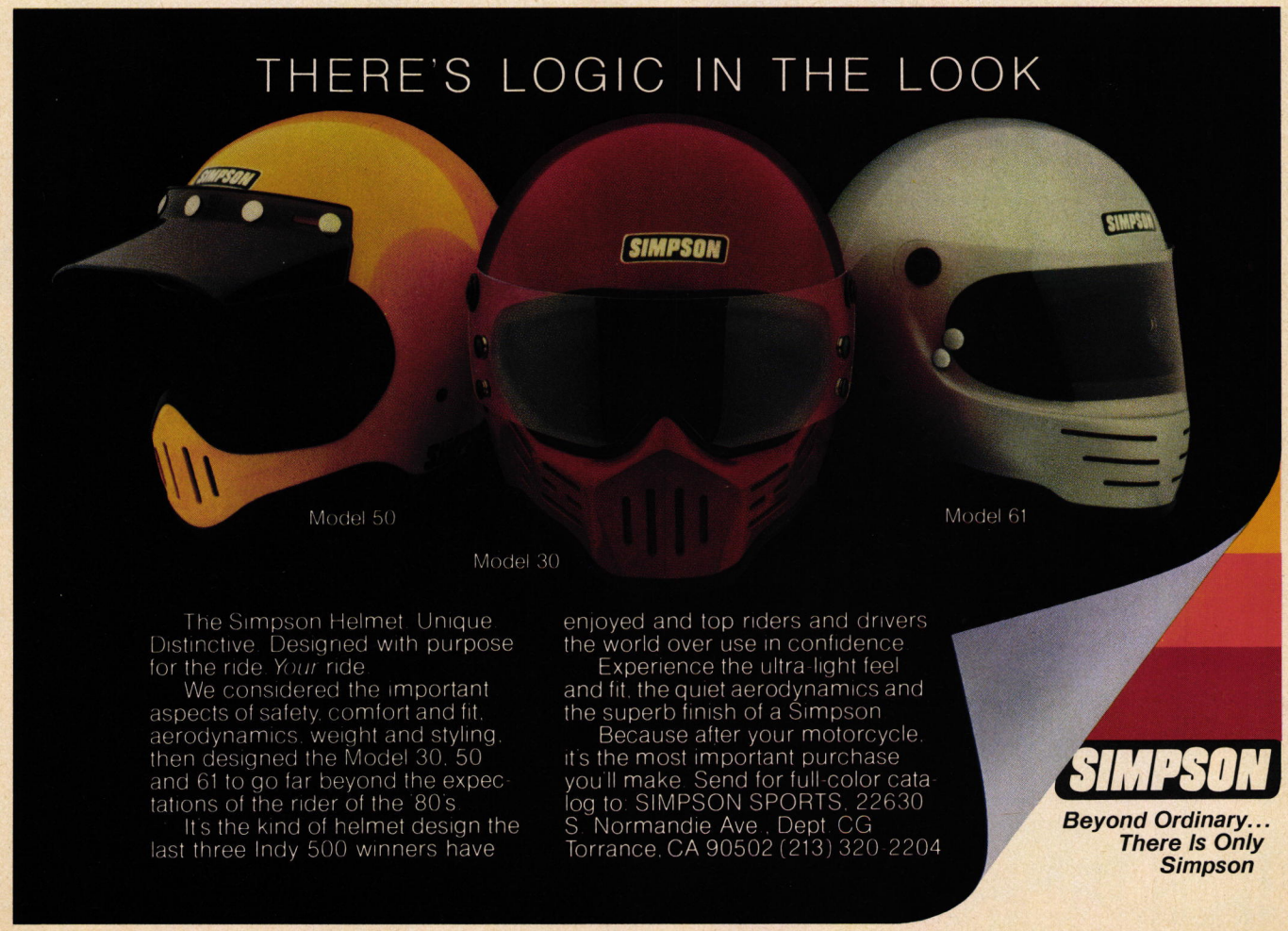


More predatory Hawk III

Wearing new brakes and riding position.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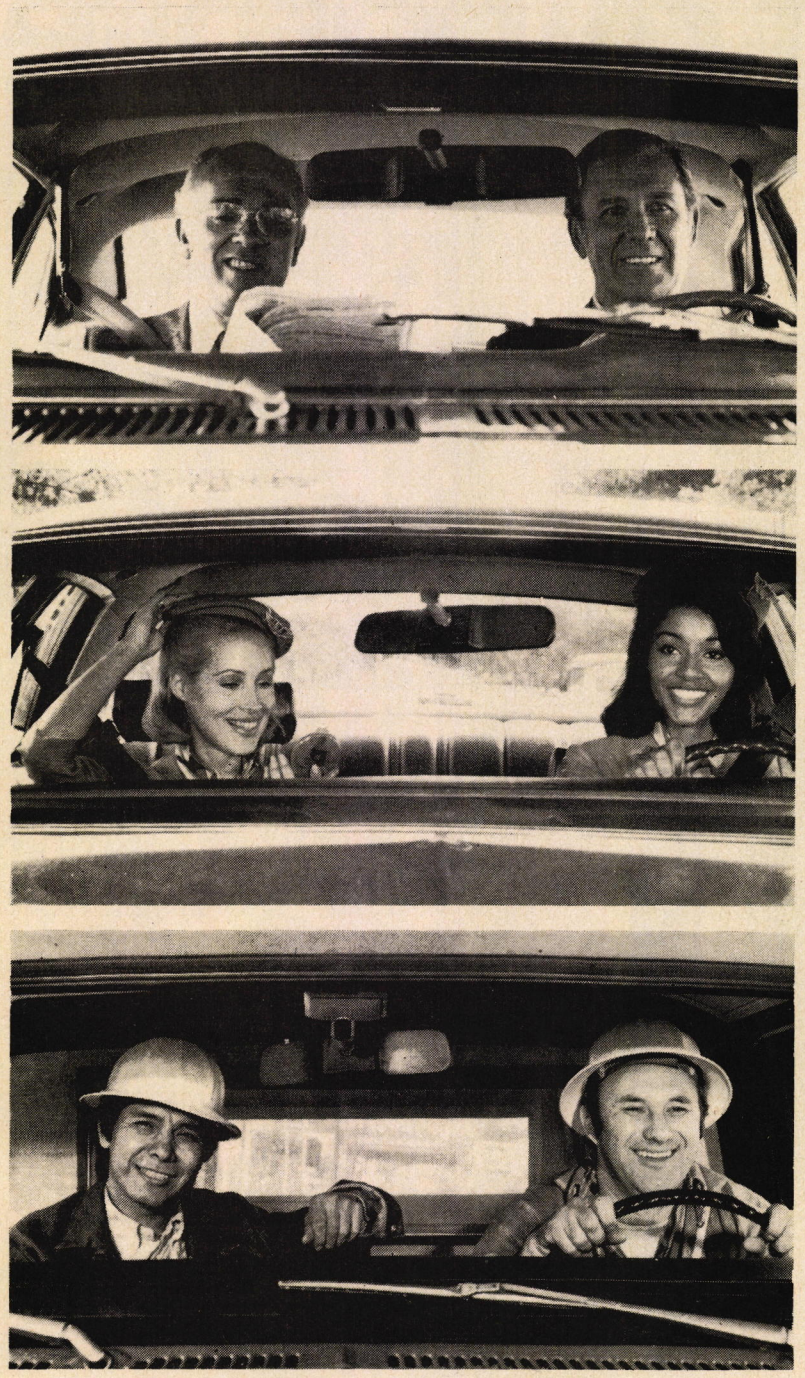

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rumorbikes right now is a new-model **Hawk III.** The tune is that the bike will offer special considerations for those of the **roadracy** persuasion among us. This new Hawk is said to run **twin-piston** disc brakes, CBX-style two-piece handlebars, an air-spring fork and slightly rearset footpegs.

• Not extraordinarily wild as rumors go, to be sure, but there *are* others. Like, for example, all those whispered reports that **Honda** is only keeping the star-crossed NR500 visible to distract the eye from what's supposedly going on with a new **disc-valve two-stroke 500** GP bike. The time frame on this one is soon, according to the gossips.

• That GP rumor is a popular one, no doubt because **500 GP** bikes are so fascinating. But are they really interesting enough for **Cagiva** to pull its attentions away from the dirt and concentrate on an all-new Italian GP bike?

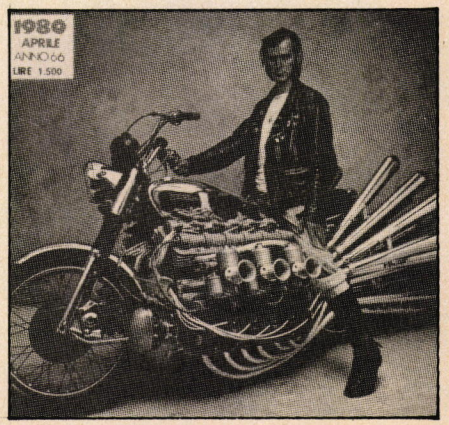
• But putting our attention on the dirt for a moment, there is that tidbit about **Maico's** 1981 Open-class motocrosser. The part about the bike displacing **494cc** is fairly juicy, but the really interesting part of the story has something to do with a **leading-link** fork.

• And keeping with the Black Forest gossip, there's some talk that new market thinking is going on now that Butler & Smith has given way to **BMW** of North America for distribution of the new bikes. The talk is that BMW will recant on an old decision and will introduce the **R45** to the American marketplace.

• To finish up with some wide-ranging industry speculation, there's talk that 1982 bikes will see lightweight **magnesium** in abundance. Industry sources conjecture that a high price on bauxite will cut down the cost differential between aluminum and magnesium; and that magnesium, in addition to its physical properties, carries with it the **mystery** of unobtanium—always a selling point.

APART FROM THE CROWD

• Spokesmen for the Motorcycle Products Group of the **Moto Buzzi** Manufacturing Company have thus far vociferously denied allegations that the firm's CV4600X-16 will be



Moto Buzzi is a straight-line demon

And corners like nobody's business.

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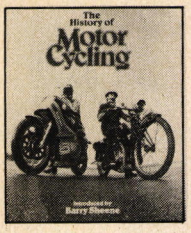
Book Review



THE HISTORY OF MOTOR CYCLING
By Cyril Ayton, Bob Holliday, Cyril Posthumus and Mike Winfield
304 pages, $26.95
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• *"The History of Motor Cycling,"* writes Barry Sheene in the foreword to this book, "tells the story of the motor cycle industry from the earliest days, right through to today." He goes on: "This is no text book, however, because the authors' lively style brings every man, machine or event to life."

Fair enough. A simple statement of the purpose of the book. But also suspiciously like the goals set forth in innumerable other would-be histories/encyclopedias of motorcycling. And, true to form, the pages following the Sheene testimonial, with few exceptions, tread the same ground over which so many other chroniclers of motolife have gone before.

This is not an extreme book. It has nice photos, a lot of them in color, of a lot of interesting machines. It has chapters with names like "Yearnings (1869–1896)" and "The Second Golden Age (1950–1954)." It has some consistency in form, despite its multiple authorship (they each wrote sequential batches of chapters). It's a handsome book, pretty enough for a coffee table, with just enough narrative to whet the appetite of a serious student of motorcycles.

What it lacks is space. In order to attempt a genuinely encyclopedic presentation, in order to really tell the whole story of the motorcycle, the anecdotes and quick examples quoted in the text need to be expanded; to be *"the"* history that its title crowns itself, this book should be two or four or six times as long. There is no doubt the authors know their stuff. The trouble is that they haven't the room to strut it well.

Given its origins, this *History* also suffers from an understandable British bias, not so much in its interpretation of the past's importance as simply in the amount of space devoted to what the past meant to Britain. Because of that, and because of its admirable intentions that fall short of accomplishment, the book will be most useful as a gift for neophyte motorcyclists. It will introduce the Ages of the Bike to them, but if they grow very much more curious, they'll quickly outgrow *The History of Motor Cycling.* —*Steve Thompson*

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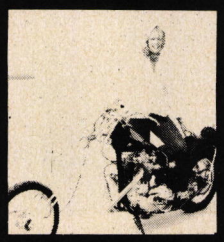

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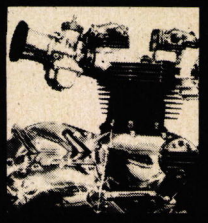

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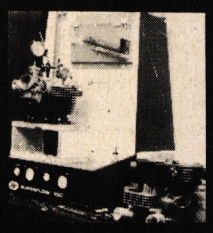

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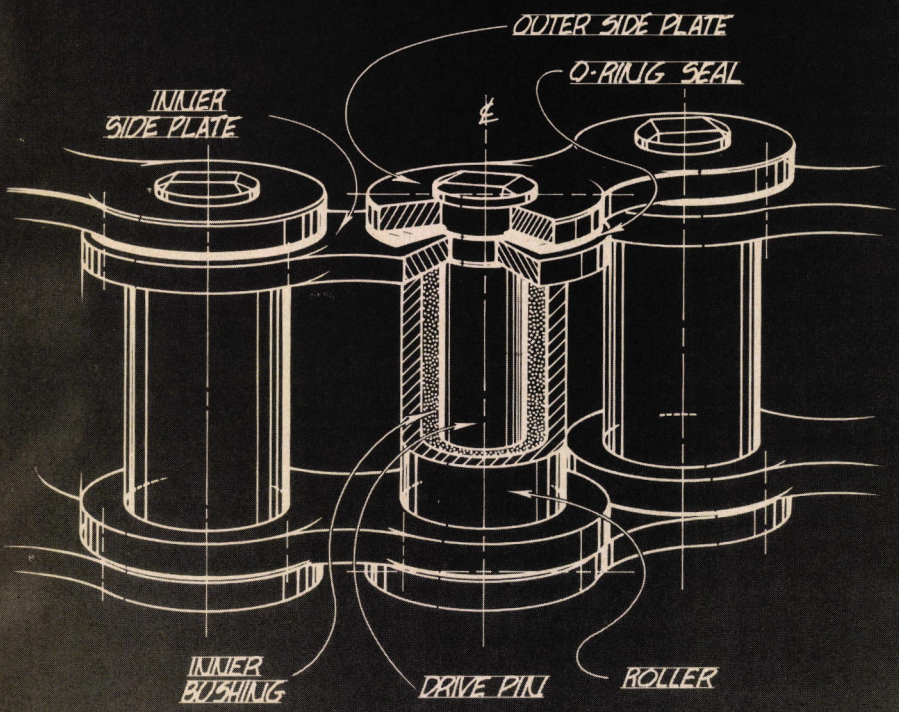

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Cycletherapy

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• You walk out of the doctor's office, prescription in hand to cure all your ills. Nothing unusual so far, but instead of taking the little slip of paper to a pharmacy, you head down to the motorcycle store for an 11-second fix to make you well.

Unlikely? Okay. Impossible? Hardly. Yet as most riders would agree, motorcycling is nothing short of therapeutic. And unlike some other forms of therapy, motorcycling doesn't work through images in the mind's eye. It isn't eyes-closed make-believe. Cylinders, pistons, rods, chains, wheels and all the pieces of a motorcycle come together into a harmony that is *felt* by the rider. And just like music, the bombardment of real-world sensations is therapeutic, psychologically beneficial.

Although the common experiences of so many riders attest to the benefits of a mind-clearing pass through the twisties, little research has been done on the psychology of motorcycling. Even more disappointing, when research *is* done, psychologists seem predisposed to turn a jaundiced eye toward motorcycling, which is frequently analyzed in demeaning ways.

A prime example of that negative analysis is shown in an article that appeared in *The American Journal of Psychiatry* in 1970. The author, Dr. Armand Nicholi, claimed to discover a "Motorcycle Syndrome." The patients (read cyclists) he observed suffering from this malady were obsessed, reportedly, with fears of homosexuality, castration and ugliness, among other things. Based on the conclusions drawn in the article, one is led to believe that motorcycling is a desperate means of compensating for a lack of confidence, an unhappy childhood and unresolved sexual problems.

Critical profiles of cyclists such as the Nicholi piece can be viewed as the inevitable trickledown from the Big Bad Biker stories that circulated in the Sixties. Such stories peaked in popularity about 1965, when social hysteria was nearly born in articles about "Ruffian Cyclists" in the *New York Times* and "The Wilder Ones" in *Time*. The articles reinforced the image of the cyclist as a leathers-and-chains goon in constant search for a rumble.

As the public saw more and more collar-and-tie motorcyclists emerging during the late Sixties, the Big Bad stories began to wear thin. But the stigma of two wheels just shifted, as in the Nicholi article, from Big/Bad to Sad/Sick. Even if the population at large learned through repeated contact not to blindly associate motorcycling with immoral, lawless behavior, psychologists did little to dispel the widespread notion that bikers are guilty by reason of insanity.

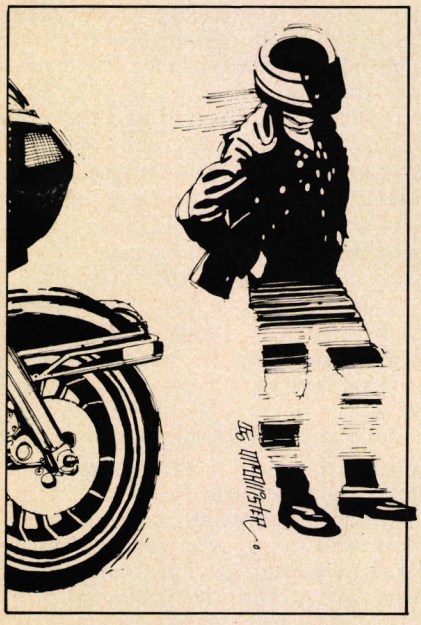
It's no wonder that Patricia Zonker, author of *Murdercycles*, felt secure in labeling motorcycling as "the two-wheel disease."

All told, psychological studies have been somewhat less than generous in doling out praise of motorcycling. But this trend of thought seems to be changing (no doubt since increasing numbers of psychological researchers are riding motorcycles these days). Professional journals are now even publishing some work that takes a positive approach to motorcycling. For example, the February 1977 issue of *Psychological Reports* featured a study by A.T. Vogt, a researcher at the University of Colorado Medical Center, that suggested the motorcycle be used as a psychological tool.

Supported by data he collected over a two-year period, Vogt showed how maintaining and riding motorcycles stimulated favorable changes in delinquent boys. While those naturally prejudiced will point to the study's link between delinquency and biking, the mere publishing of such a study shows that motorcycling has made quantum leaps in public acceptance recently. Psychologists are now willing to admit that maybe, just maybe, motorcycling has a good influence to offer.

Times do change. Rock music was once considered a social disease. Nowadays, it is used as music therapy. Motorcycling, like forms of music, might someday be recognized as therapeutic. Fortunately, very few riders have been waiting for the sanctioned approval of the psychological community to enjoy the benefits of motorcycling. In explicit recognition that biking soothes the psyche, countless numbers are even now indulging in single and group therapy.

—John Anthony Ofrias



John Anthony Ofrias is a professional psychotherapist.

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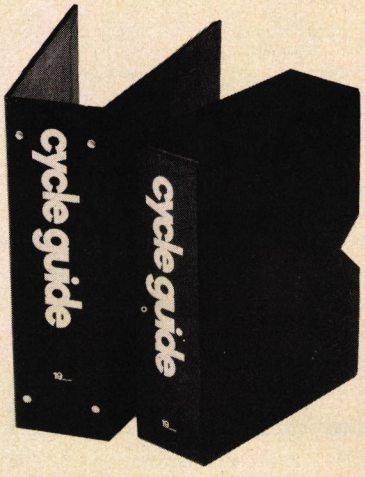

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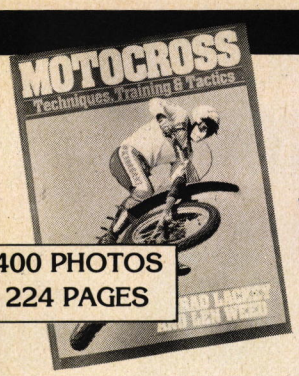

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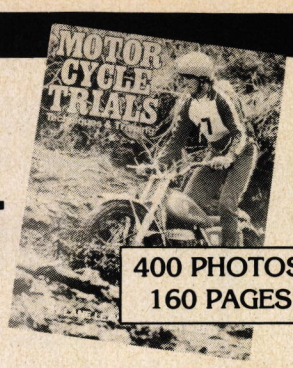

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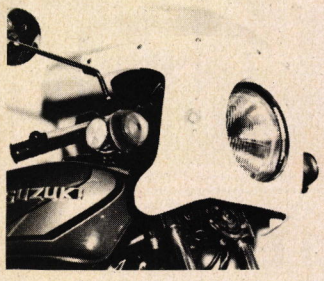

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• Three unique induction designs will be featured on a number of 1981 Yamaha models. Yamaha Induction Control System (YICS) on the new bikes should interest four-stroke and two-stroke owners because it promises better performance as well as better fuel mileage.

Two versions feature a double inlet port. On single-cylinder four-strokes, a conventional large inlet is supplemented by a 75 percent smaller passage, both feeding through the same inlet valve. At high engine speed the regular intake is used, however as rpm drops a valve closes off this large port, bringing the smaller port into play.

Because the fuel mixture has to travel faster through the smaller port to pass the same volume as the main passage, gas enters the combustion chamber at a much higher speed. The gas also enters at a much shallower angle than in conventional chambers, imparting a swirl and promoting better combustion. Any engine speed increase is sensed by a diaphragm working off intake pressure, which slowly opens the port's valve, allowing the main port to operate normally.

Reports from Japan claim as much as a 10 percent improvement in fuel mileage through this development. The system should also improve a four-stroke single's performance just off idle, where large throttle openings and low engine speed normally combine to make the motor stumble.

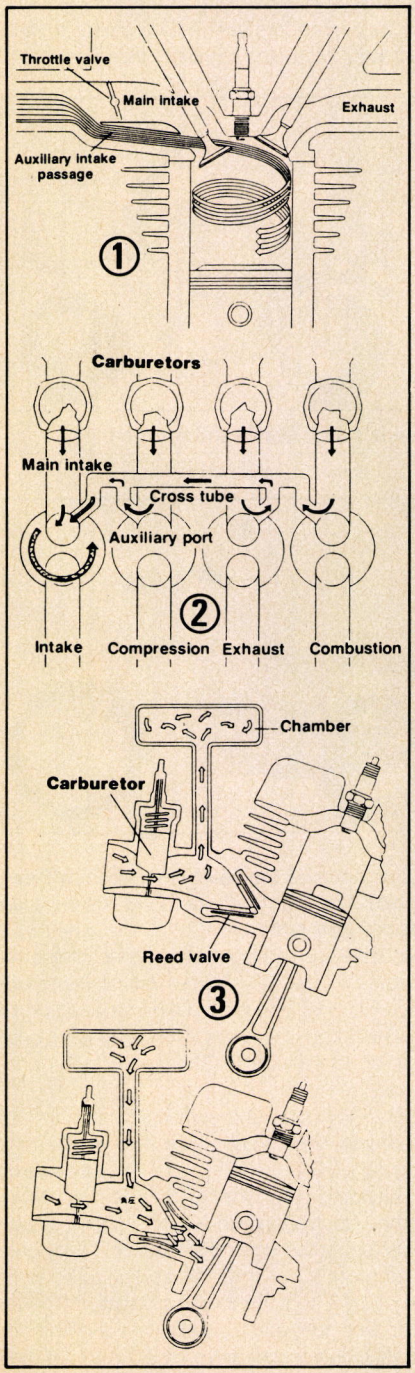
Multi-cylinder motors do not suffer from this problem, but they can still benefit from the auxiliary port system. On multis, all four inlets are inter-connected by a common auxiliary port. This allows a cylinder on the induction stroke to take advantage of three other carbs that have no port to feed. The gas from these three normally redundant carbs is fed to the one inducting chamber, again entering at a very shallow angle to promote swirl and improve combustion as a result.

Two-strokes also get into the hi-tech induction act with a system developed on factory motocrossers. This consists of a large chamber connected to the inlet manifold between carburetor and reed valve. During induction, gas flows through the reed valve as normal, but as the reed valve closes, the incoming charge can expand up into the chamber. At that point a negative pressure wave passes back to the carb as

usual, leaving a low pressure area in front of the reed valve. This low pressure draws fuel from the chamber just in time for valve opening. The normally late reflected pressure wave containing a fresh charge then supplements gas from the chamber.

By effectively altering the resonant frequency of the inlet, Yamaha would appear to have broadened the two-stroke motor's power band. And with gains in power as well as claimed improvements in fuel consumption, Yamaha appears to have given more performance without using any more fuel. And anything that does that in these fuel-short times has to be significant.

—David Dewhurst



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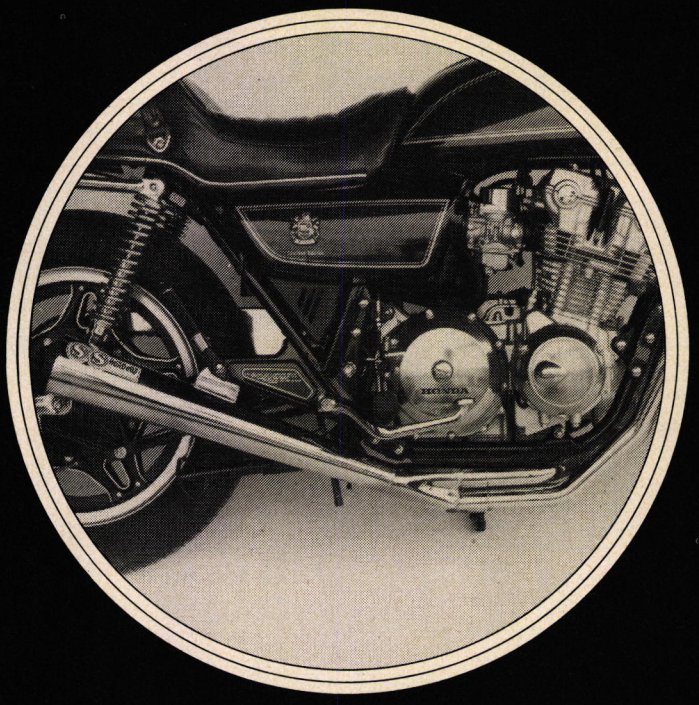

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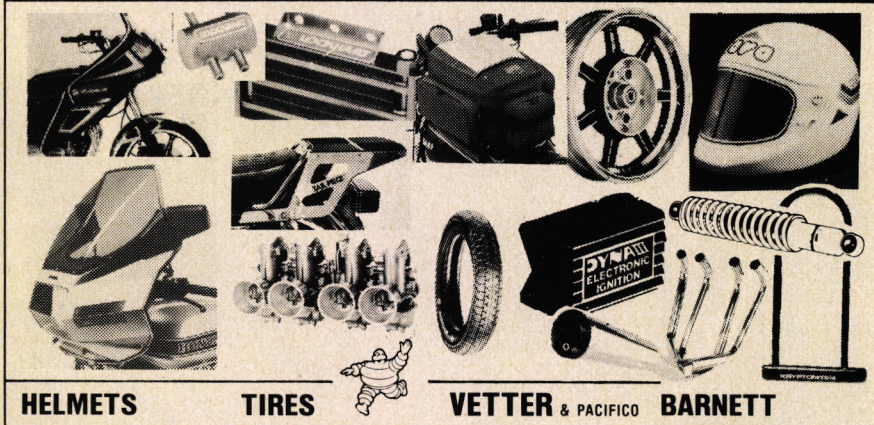

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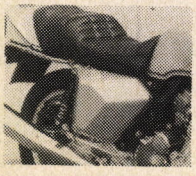

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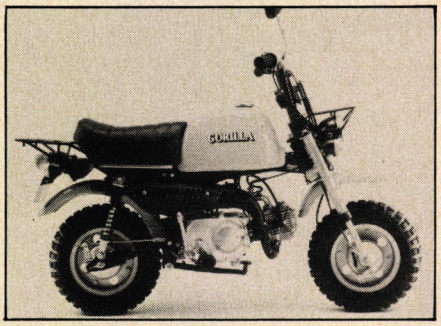
made available to the public. Ever. Running **16 cylinders** in multiple configurations posed its own design and development woes—not the least of which was valve adjustment—according to sources inside the family-owned moto-dynasty. But the real death knell for the innovative protobike sounded when ongoing negotiations with an international **chrome** mining cartel failed.

• Have a little **pity** for the California Highway Patrol. At least, that's what the CHP wants you to do. The thinking is that if you feel sorry enough for them, perhaps you won't just ride away when they flick on their flashing lights. Right. Not only has the **CHP** lost the battle for radar one more time, the complaint is that its new patrol cars are the slowest in CHP history. The real-world top speed of a CHP-equipped St. Regis is in the vicinity of 90 mph, sources say, and speeders are leaving them in their dust with increasing regularity these days.



Honda's 49cc Gorilla and Raccoon

No. 1 shows its animal side.

• Ever ridden a **Gorilla?** How about a **Raccoon?** The truth is, if you don't live in Japan you probably never will. Oh, by the way, these aren't the fur-and-bone variety. No, these inductees to the Silly Name Hall of Fame are 49cc Hondas. And the reason that you'll probably never get the chance to swing a leg over one of them is that they are Japan-only models.

• You know how sometimes you start to get **nervous** when a policeman follows you for a long time? Even when you're not **speeding** or anything? Apparently that feeling didn't bother Doug Domokos, who, with a police escort, rode through the streets of Philadelphia to promote Supercross racing. The odd part of the story is that the police not only followed Domokos, they surrounded him—and his front wheel didn't touch down for 20 miles, a new world's record. •

ROAD TEST:

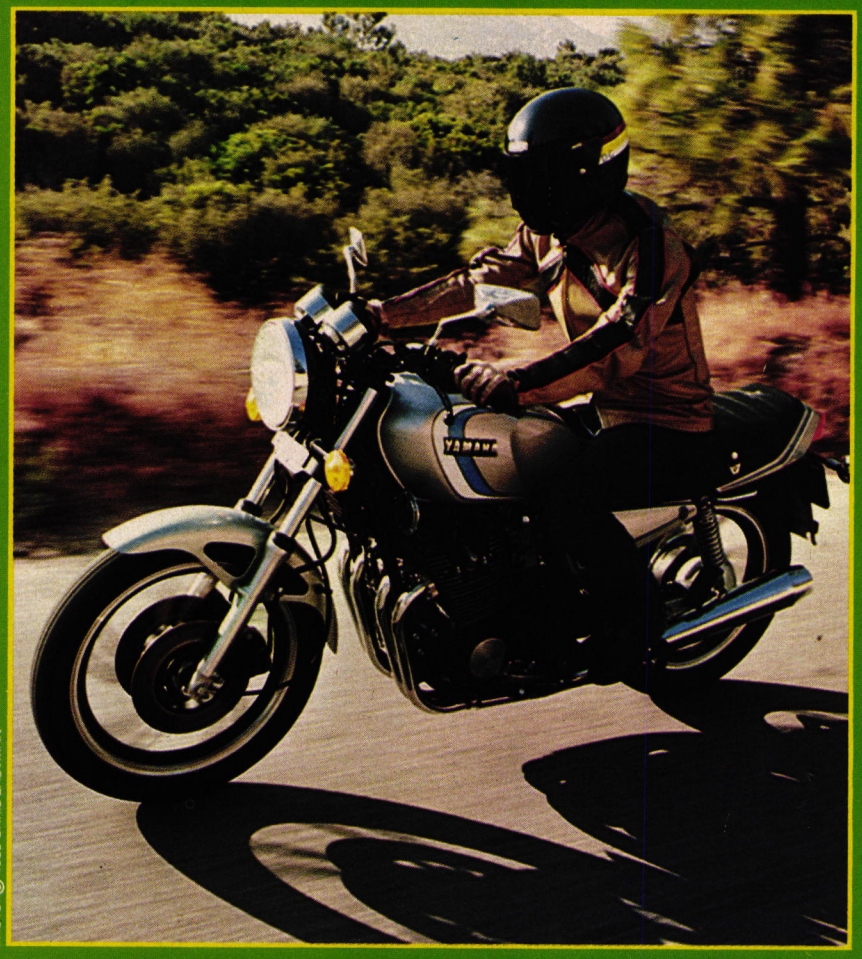


PHOTO © 1980 CHRIS EASTMAN

Yamaha XJ650

Here on an international passport, proof that all the crypto-café snobbery about European bikes is plain bull—the XJ650, the best GT ride on both sides of The Pond.

BY STEVE THOMPSON

There's a hole in the American motorcycle market, a blank space where one specific kind of street bike ought to be. We've got Specials of every description, rugged multi-role bikes, touring bikes, café racers, commuter bikes, mopeds, nopeds and hyperbikes. Unless you're one of the small but growing group of people who can't find the machinery that should fill that blank spot, you probably aren't even aware that a void exists. But if you *are* a member of that disappointed fraternity, you know well enough what isn't there—and it looks just like the silver-and-blue Yamaha XJ650 Eurobike you see here.

Don't consider that mere hyperbole. If you're one of those frustrated riders, until now your only options have been a few Eurobikes: BMWs, Moto Guzzis and Ducatis, maybe. But for riders weaned on sophisticated Japanese engine technology, these splendid but aging examples of the genre simply didn't fully satisfy. What we're talking about here is a motorcycle of refinement, of grace at speed; indeed, *built* for speed. A motorcycle to be used with judgment by an educated rider in all conditions, but especially in the gnarliest of twisties. This is a genre of mostly solo riding, but it isn't Moto Café, where garish cosmetics and racer aspirations deform the vehicle. No back-breaking clip-ons need

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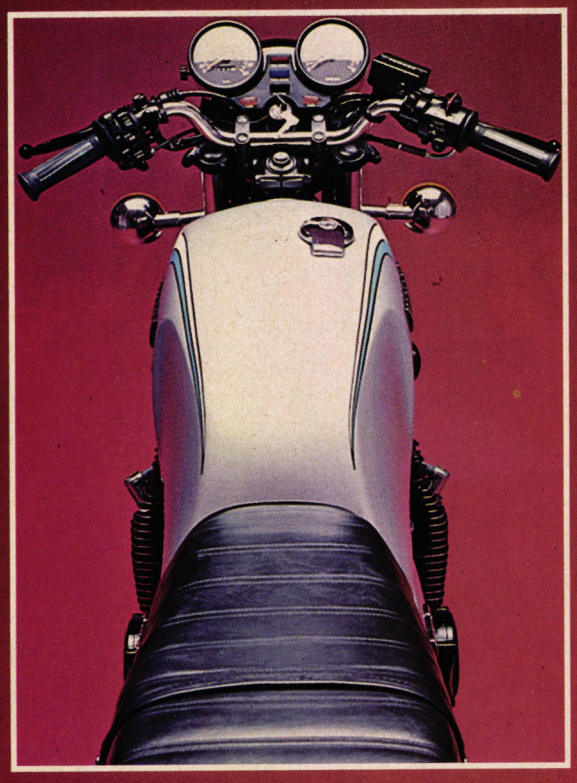

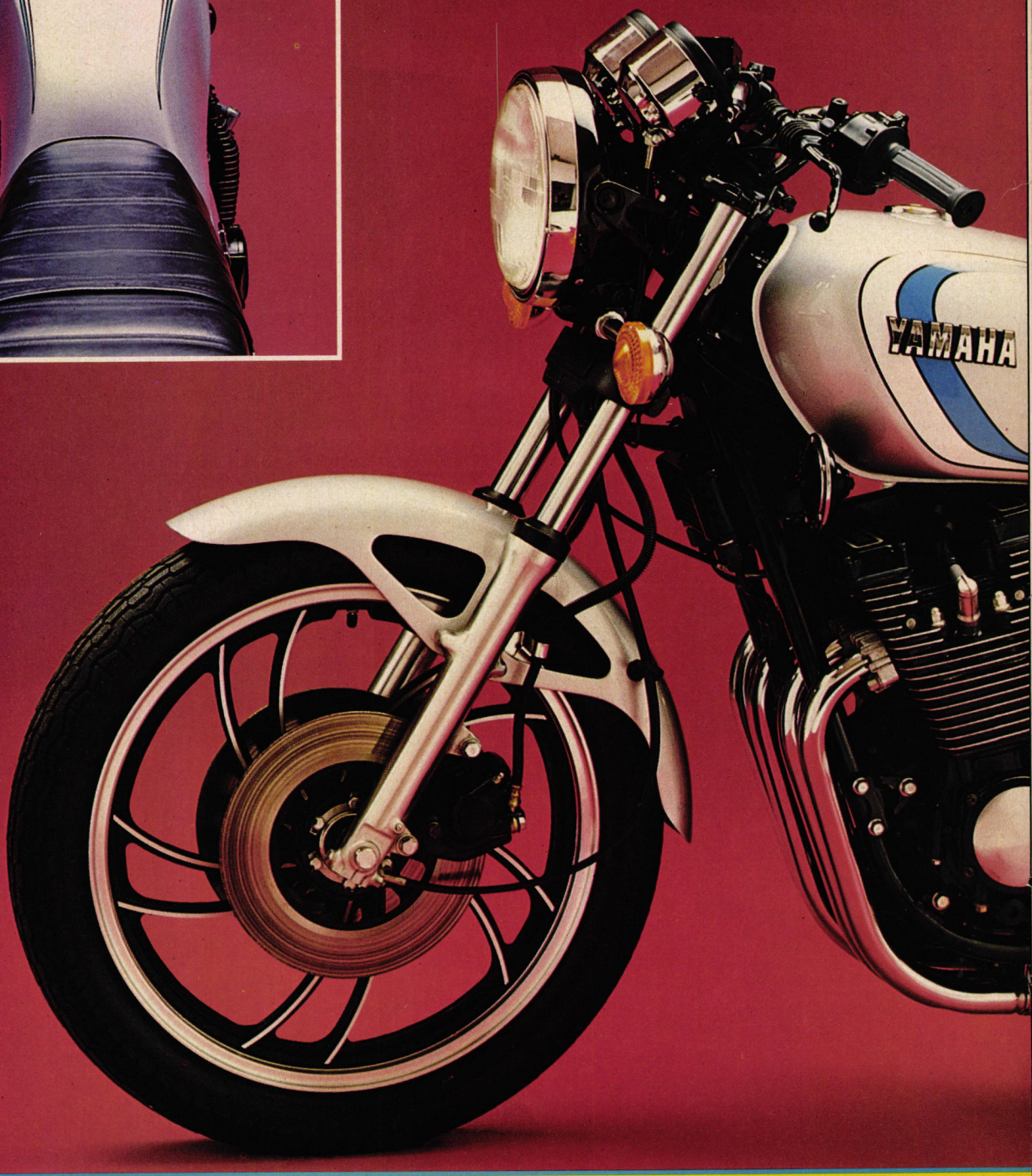
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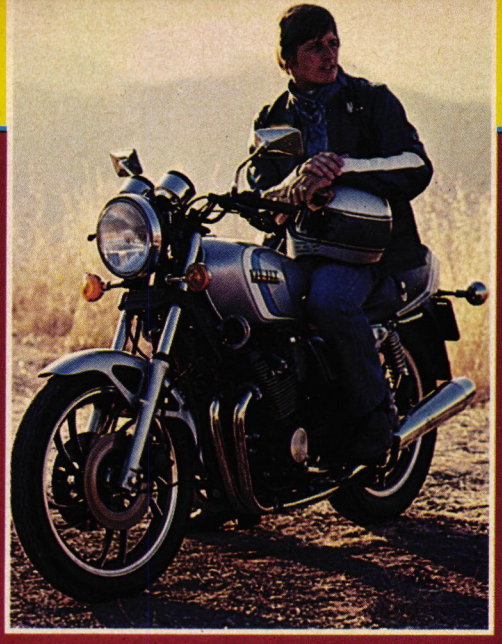

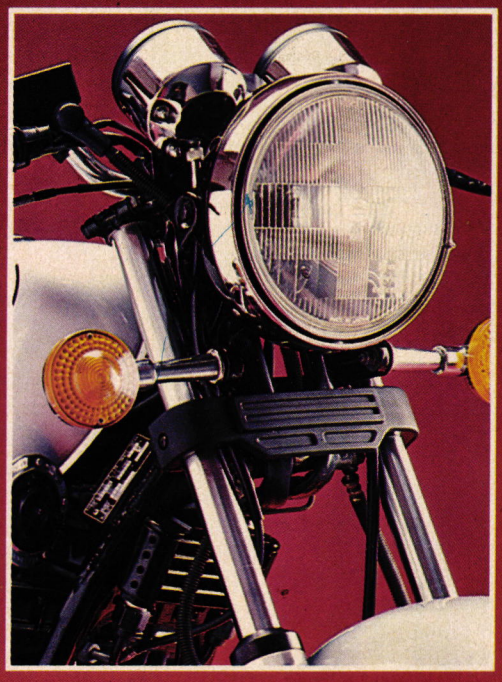

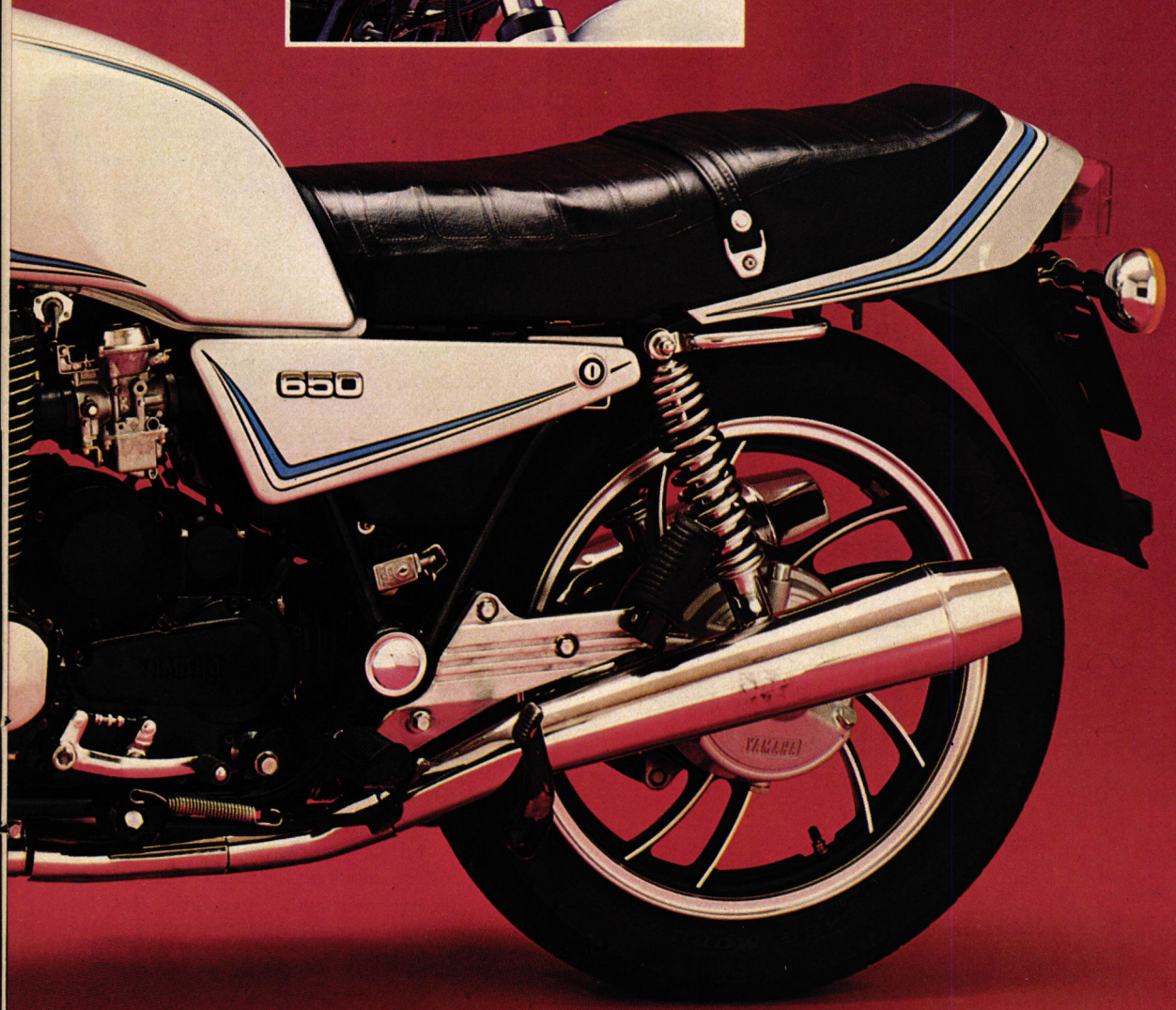

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The Right Motorcycle

• The Yamaha XJ650 isn't just a great motorcycle; it's the best American bike your Pounds, Francs, Lira or Deutschmarks can buy. Yamaha might not have any immediate plans to market it in the U.S., but the Euro-XJ's performance profile perfectly suits the riding requirements of this country, no matter how European the classic styling, low handlebar and rearset footpegs may look to you.

The reason lies in the peculiar geography of this country. You see, sport bikes capable of feathering the furthest reaches of their tire treads are fine in theory, but in America the playgrounds necessary for such antics usually lie at the end of long, upright rides on freeways and rural roads. That's why high-strung, crypto-café bikes have never been popular here. When it's possible to ride 200 miles just for fun, comfort becomes of prime importance.

This landscape of long distances and straight roads has led many motorcycle manufacturers to believe that bikes configured for the U.S.A. should feature fiddle-free shaft drive, provide flexible mid-range engine performance and, above all, pamper the rider. What these same manufacturers do not understand, however, is that the same performance parameters can and should be applied to sport bikes.

The Euro-XJ is the perfect example of American priorities integrated into a sporting motorcycle. Sure, the XJ can thrill you when it's heeled over—but it's also comfortable *between* the corners of racer road. It's one of the few motorcycles we have experienced that makes the end of a 400-mile ride as much fun as the beginning.

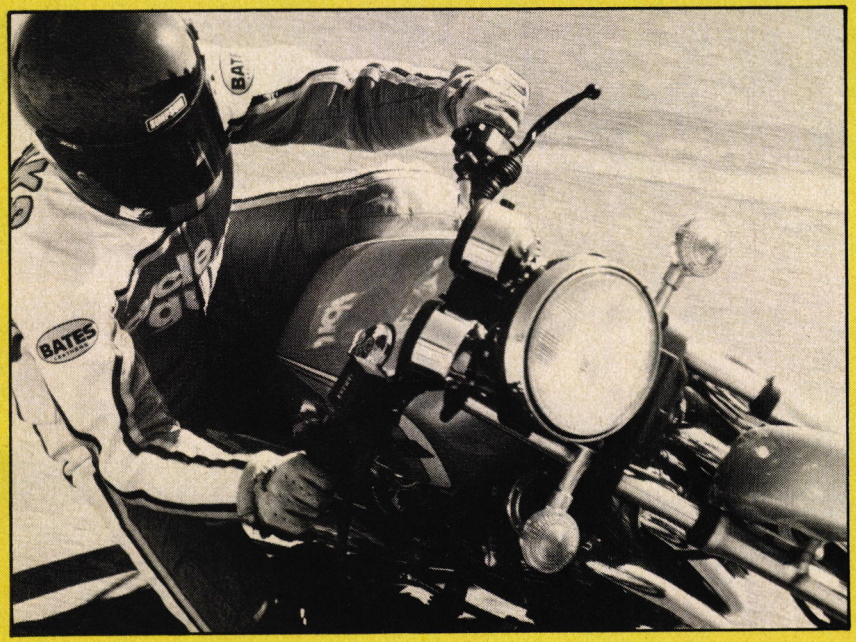
Ironically, the enthusiasm for laid-back, American-style customs makes the sale of such a bike sport in this country more economically viable. That's because the great body of riders now has been polarized between upright cruisers and leaned-over crazies. There's little room for the compromise bikes of five years ago that attempted to combine racy looks with mushy suspensions and upright riding positions. Such a bike appeals to no one these days.

It makes sense, then, to tailor sport bikes to their true constituency, just as it makes sense to build touring bikes for tourers and custom bikes for custom guys. It can be argued that the people likely to vote with their wallets for such a motorcycle inhabit the fringes of the continent rather than the heartland, but as the sales figures of the Honda CB750F attest, their numbers are substantial nonetheless.

At the short hairs of this question of American sport bikes is this: the U.S.A. needs the Euro-XJ650. It's the sort of go-fast bike Americans will buy because of its shaft drive, resilient suspension, smooth, fuel-efficient engine and comfortable riding position. We're not talking about a motorcycle *like* this bike; we're talking about *precisely* this bike.

Here at CYCLE GUIDE, we are convinced the Yamaha XJ650 Eurobike is at the leading edge of a new generation of American sporting motorcycles. It's the right bike at the right time. We're so convinced, in fact, that we're willing to stand up on a soapbox and say so. If you want to climb up on the soapbox with us, send a card or letter to CYCLE GUIDE, 1440 West Walnut Street, Compton, California 90220. We'd like to know if you think the XJ650 Eurobike is as good as we think it is.

—*Michael Jordan*

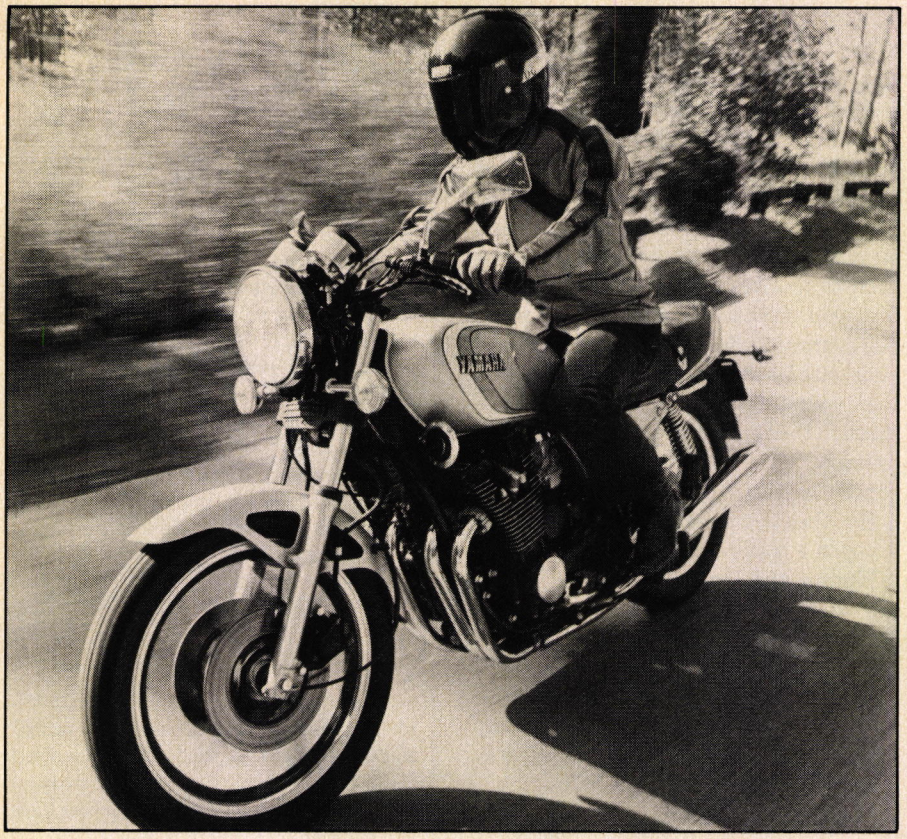


apply here, nor should hand-grenade motors, harsh suspensions or crude technology. This is a different kind of motorcycle, one in which comfort plays a role as important as speed. We should call bikes like this "GTs" for Grand Touring, meant to swallow long stretches of winding roads with both comfort *and* speed. This is the sort of bike missing from the showrooms of America. Hence the instant allure of the XJ650 Yamaha sells in Europe.

Though it is built on the same chassis as the Made-for-America Maxim I, the Euro-650 fulfills its GT-role with telltale accouterments sure to warm the hearts of those of you yearning for a Japanese hi-tech BMW. A massive 8-inch halogen headlight dominates the front end, controlled by a switch that not only gives you the option of low- and high-beam but a special dim beam for city riding as well. There's also a rocker switch that fires up the high-beam whenever you want to alert the four-wheel slugs ahead to your overtaking burn. Meanwhile, the side- and centerstands are shrewdly pivoted and located to provide maximum ground clearance. And to this end, the exhaust plumbing is routed far inboard under the engine, until the pipes curve out near the swingarm and aim rearward like a couple of AA cannons with 30-degree reverse cones. With small touches like the oil cooler mounted on the downtubes, this assembly of visual aids speaks eloquently to the American rider in search of the bike that isn't there.

Still, the linchpin of this bike's appealing GT nature is its riding position. First, the swoopy 5.2-gallon fuel tank arches down into tapered knee knotches just in front of the plain bench seat. The seat itself is covered in a slightly loose fine-grain hide of the rare Nauga. The folding rearset footpegs are located four inches aft of the Maxim's footpeg mountings, near the swingarm where God and generations of British race-bike designers intended them to be. The gearshift linkage, which features a unique design with a remote link in front of the shift shaft, uses rod-ends throughout to minimize slop. The handlebar is nothing short of exquisite, low and with little rise and pullback to be sure, but with enough drop to ease the burden on wrists. All together, it is a riding position you can settle into for hundreds of miles. The riding position alone makes you well disposed to this machine even without riding it.

Such bias is unnecessary. The Euro-650 earns your admiration on its own merits. This motorcycle, sharing as it does the key elements of the Maxim I (see *CG*, June 1980 for the full Maxim test), also shares its strong points, which begin with a lusty,



The GT riding style, the magic mean between braced and crouched

Enduring for distance without the need for superbike athletics.

sophisticated engine and a strong, well-designed frame. To turn the Maxim into the Euro-650, Yamaha had to make few changes. The engine, for example, is identical except for a slight increase in the jet sizes of the Hitachi carburetors (typified by the main jet going from a 40 to a 45), a reprofiled inlet cam that produces four degrees more duration and 0.3mm more lift than the Maxim's, and deletion of EPA-pleasing crankcase pressurization. In concert with a less-restrictive exhaust system, the engine is tuned to produce a few more ponies at the high rpm Yamaha expects the Eurorider to use. The fact that our specifications page doesn't reflect this is a function only of the weariness of the test engine, which was subjected to something like a thousand kilometers of racetrack testing before it reached our hands.

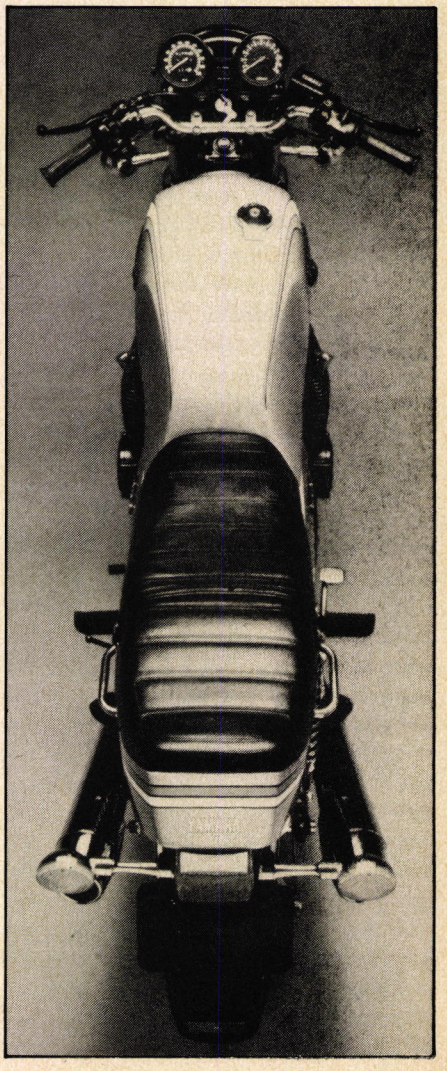
The only alternation to the frame geometry required to turn Boulevard Bomber Maxim into a Euro-GT was a slight steepening of the steering head, changing rake from the Maxim's 29.0 degrees to 27.5 degrees. Likewise, the leading-axle fork has been replaced with a straight-leg unit using softer initial springing, less preload and more rebound damping than the Maxim's. The cast, spiral-spoke front wheel is common to both bikes, as is the Bridgestone Mag Mopus tire, but in place of the American 295mm single disc brake, the Euro-650 gets two 267mm discs.

Keeping in mind the European environment this bike was meant for, it's plain to see Yamaha's goal for the suspension: It must cope with large deflections from rough conditions at high speeds, from Autobahn to Belgian blocks. Hence the fork's compression stroke coupled with better damping. The same thinking lies behind the alterations to the rear shocks, which while retaining nearly the same travel as the Maxim's, provide more preload, slightly heavier initial springing and a lighter second spring rate, not to mention a hefty 20 percent more rebound damping than the Maxim and 30 percent more compression damping. These changes all tell of Yamaha's desire to keep the large, unsprung rear mass of the shaft drive under control. And while the back ends of the bikes look the same, the drum brake of the Euro-bike is 20mm larger than the Maxim's. The wheel also grew to 18 inches in diameter (the Maxim has a 16-incher).

More important to the Eurorider, though, is the fact that the subtle but important changes to the Maxim result in a massive gain in the bike's ability to gobble road at any speed, any bank angle, under any conditions. And yet this is only partly due to the tweaked suspension. Most of it derives from the benefits of the riding position, which could be the most significant aspect of the Eurobike.

Because Americans have overwhelmingly voted with their wallets for motorcycles with a full upright riding position, Yamaha configured its U.S. 650 with pullback bars and the low, stepped seat Americans demand. This places the rider smack on the end of his spine, literally holding himself up with the nearly parallel bar-ends. Many people have found this riding position to be painful on long rides, but in that complaint they miss the point; average trip length in this country is, after all, something less than 10 miles by the Motorcycle Industry Council's computation (1977). Thus for the majority of American riders, the Maxim's laid-back style works just fine. *But.*

But it's junk for more than a few minutes. The load on the spine causes pain and the handgrip position reduces precise steering control at high speeds. Furthermore, at high speeds, the rider is nearly blown off the bike. What's needed for more serious work, trips in the 50- to 200-mile category, is what the XJ650 Eurobike offers: the Magic Mean between sit-up-and-



Continued

beg and the café crouch.

Yamaha's ergonomics engineers, like Honda's CB900F designers (*CG*, February 1980), obviously have watched and measured and listened to a great many Euroriders, because like the CB900F, the EuroYamaha feels comfortable instantly. The weight of your body is spread along your buttocks and the inside of your thighs on the seat; your arms slightly outstretched, wrists turned down a little to spread the load. Footpegs are located so that you can stand easily at any time—a sure and quick check of an efficient riding position pioneered by designers of race bikes. The idea is that if you can't raise your body comfortably, the bike is going to get *un*comfortable. Fast.

The proof is in the riding. A six-foot rider can hammer this machine for literally eight hours along *every* kind of road at *any* speed from freeway-slow to Alpine Berserk and not suffer numb-butt or shatterhand. Wrists never hurt, nor does the base of the spine. Result: Huge lengths of road can be eaten without effort.

That point should be underlined, because it's critical to the GT genre. Unlike a flashbike or café racer, this sort of machine should not require the rider to perform gymnastics to wring the best from it. A proper GT riding position mated to a well-designed suspension and willing engine should allow the rider to sit comfortably and flick the bike from max-lean on one side under braking, clip the apex or pass the diesel truck, apply power and flick to max-lean on the other side, all without Superbike-racer athletics. Such a bike is comfortable in *action*—not just in repose.

That's what the paradigm of the GT bike is, and the XJ650 meets it admirably. Despite its slower quarter-mile E.T. (a function of the tired engine and the greater weight), the 653cc DOHC four pours out even, controllable power without flat spots. At 6000 rpm it comes alive, and at 8000 provides serious poke, so to pull everything out of it, a lot of two-stroke-style shifting is demanded. Given the fairly smooth-shifting gearbox, this is easy, and so a genuine 110 mph is quickly attainable without crawling under the paint. Unlike the paragons of the GT genre, the BMWs, the Yamaha doesn't pitch under braking or acceleration, nor does it emulate the unfortunate tendency of BMWs to climb up and down on the crown-wheel-and-pinions in the aft gearcase.

And as promised by the visuals of the XJ650, the best riding technique is in the best generic traditions of the GT. You need only find a comfy spot on the seat and apply gentle pressure to the controls to fairly fly on the ground with this bike. The Mag Mopus tires work just fine in the dry, and they need to, because the compliant, controlled suspension and superb ground clearance allow lean angles just this side of a Yamaha TZ750. You must be going literally ten-tenths before either footpeg ticks the ground, and even then the bike tracks steady and true. Indeed, the biggest drawback to this kind of performance is your feet; you must draw your toes up on the peg at these angles or you'll grind through your shoe leather in short order, and even then your toes will drag if they protrude through the space between peg and shifter or brake. That, friends, is *something* for a conventional street bike.

But then this is some kind of street bike. Imagine a motorcycle that melds the best of Europe and Japan so subtly it's hard to tell where one stops and the other begins. Imagine a motorcycle capable of 100-mph speeds all day while delivering mid-40s mpg. Imagine further that this same motorcycle loses none of its aplomb two-up, simply giving away a bit of ground clearance. You've imagined the XJ650.

Granted, there are drawbacks. It is heavy, at 476 pounds dry, only 50 pounds shy of the Honda CB750F and five pounds *more* than the KZ750 four. And the exhaust note, which has no growl and a lot of howl in it, can be tiring. Moreover, if one were to attempt gilding the lily with saddlebags or a small fairing, the magic would evaporate quickly, since the pipes preclude serious cargo capacity and any kind of useful fairing would deprive the rider of the wind he needs to lift his weight off his wrists. So the motorcycle, to be successful in its role, must stand naked.

But so what? The XJ650 stands at the forefront of motorcycle design even in its nakedness. Its achievement lies in the way it defies the stereotypes. Unlike the European cliché, the XJ650 is racy, fast and agile without being uncomfortable, cranky and stiff-legged. Unlike the American cliché, the XJ650 is smooth, flexible and plush without being sluggish and clumsy.

Here at last we have the matching of European and American design priorities. The Euro-XJ650 is a great motorcycle for the way it takes American virtues of comfort, adapts them to European standards of agility and turns what should be compromise into greatness. The result is a motorcycle that has an appeal far more international than even Yamaha International suspects. For those riders who yearn for that expression of speed and comfort that the designation "GT" expresses, the Yamaha Euro-650 is the new definition of the genre. •

Ride Review

• Sport-riders, get your airplane tickets and head directly to Europe. You've got to ride this bike. It's not a café racer, nor is it your garden-variety street bike. It's a sport-bike that's blessed with the right amount of everything a sport-rider wants, such as handling and predictable steering. I can ballet-dance this bike around any corner. And it brakes so well, it never stumbles on the entry because of sensitive discs.

But let's talk extremes: cornering angle. You almost have to go off your gyro-rocker to get this bike to scrape hardware in a corner. And when you rub a little paint from the pegs and stands, not to worry, it's as steady as if you were riding it in a straight line at 30 mph.

I could continue to rave about the Euro-650, but the final line is, I lust for it. I lust for this bike to belong to me.

—Dain Gingerelli

• I have never regretted leaving England. I soon learned to like baseball and popcorn, and can even enjoy the odd Custom motorcycle. However, one ride on the European XJ650 left me homesick for warm beer, fish and chips and real motorcycles.

From the moment my 6-foot-two-inch frame draped around the XJ650 I was transported back to a land where motorcycles are used for more than a trip to the Seven-Eleven. Because not only was this bike beautiful in my eyes, it also functioned beautifully, long after I passed the Seven-Eleven.

The XJ650 is a machine that redefines the term Grand Touring. Forget about high bars and a fairing. Straight bars and rear-sets really can be comfortable on a long trip. The only trouble is I will have to make a trip all the way back to Europe to enjoy it.

—David Dewhurst

• You already know that the Euro-XJ scribes the fastest line through the switchbacks and that it will give you vertigo before you can get a footpeg to touch down. But maybe you're not convinced that the switch from Maxim specs to a tightened suspension, non-rubber-mounted engine and European riding position can produce a more comfortable bike. Well, be convinced.

This suspension swallows freeway expansion joints without gagging and the engine spins as smoothly at idle as it does at redline. And the riding position is graceful. Since I ride with my head tilted further up than anybody else around here, I really despise the crypto-café tuck. Yet the Euro-XJ's riding position never made me feel clumsy in metro-traffic and it took all the sting out of 100-mile rides.

Sure, this bike runs real good on Sundays. But it's great Monday-through-Friday, too.

—Michael Jordan

Yamaha XJ650

SPECIFICATIONS:

MANUFACTURER: Yamaha Motor Co.
2500 Shingai Iwata-Shi
Shizuoka-Ken, 438 Japan

CATEGORY: street

SUGGESTED RETAIL PRICE: NA

ENGINE

Type ..... four-stroke transverse vertical four
Valve arrangement ..... double overhead camshafts
Bore and stroke ..... 63.0mm x 52.4mm
Displacement 653.4cc
Compression ratio 9.2:1
Carburetion ..... four 32mm Hitachi constant-velocity
Air filter ..... disposable pleated paper element
Lubrication ..... wet sump
Starting system ..... electric only
Ignition ..... transistorized pointless; dual electronic pickups/dual coils
Charging system ..... 12-volt; AC generator/voltage regulator/rectifier

DRIVETRAIN

Primary drive ..... helical gears
Primary drive ratio 1.67:1
Clutch ..... wet, multi-plate
Transmission-to-middle-gear drive ..... straight-cut gears
Transmission-to-middle-gear ratio 1.36:1
Middle-gear-to-driveshaft drive ..... spiral-bevel gears
Middle-gear-to-driveshaft ratio 1.06:1
Driveshaft-to-rear-wheel drive ..... spiral-bevel gears
Driveshaft-to-rear-wheel ratio 2.91:1

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.19	15.29	4.9
II	1.50	10.47	7.2
III	1.15	8.03	9.3
IV	0.93	6.49	11.6
V	0.81	5.65	13.2

SUSPENSION/WHEEL TRAVEL, IN.

Front ..... 36mm stanchion tube diameter/5.6 in. (142mm)
Rear ..... 5-way adjustable spring preload/3.65 in. (93mm)

BRAKES

Front ..... dual single-action hydraulic calipers, 10.5-in. (267mm) discs
Rear ..... drum, single-leading shoe, rod-operated

TIRES

Front ..... 3.25H19 Bridgestone Mag Mopus
Rear ..... 120/90-18 Bridgestone 65H

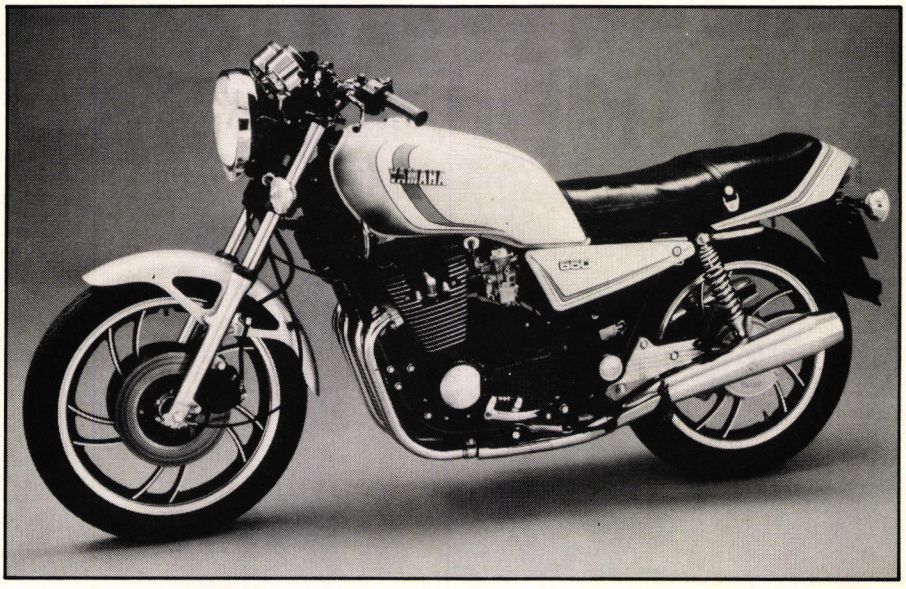
DIMENSIONS AND CAPACITIES

Weight ..... 476 lbs. (216kg)
Weight distribution ..... 46.8% front, 53.2% rear
Gross vehicle weight rating ..... 952 lbs. (432kg)
Wheelbase ..... 56.5 in. (143.5cm)
Seat height ..... 31.2 in. (794mm)
Handlebar width ..... 27.5 in. (699mm)
Footpeg height ..... 12.0 in. (305mm)
Ground clearance ..... 5.4 in. (137mm), at exhaust pipes
Steering head angle ..... 27.5 degrees from vertical
Front wheel trail ..... 4.53 in. (115mm)
Frame ..... tubular mild steel, double front downtubes
Oil capacity 3.1qt (3.3/)
Fuel tank ..... steel, 5.2 gal. (19.5/), including 0.84 gal. (3.2/) reserve
Instrumentation ..... speedometer, odometer, tripmeter resettable to zero, tachometer

PERFORMANCE

Fuel consumption ..... 43 to 44 mpg (18 to 19 km/l)
Range, maximum ..... 225 to 231 miles (362 to 372 km)
Range, reserve only ..... 36 to 37 miles (58 to 60 km)
Speedometer error, 30 mph indicated ..... 29 mph actual
Speedometer error, 60 mph indicated ..... 58 mph actual
Best ¼-mile acceleration .... 13.19 sec., 102.4 mph (165 kph)
Top speed (calculated) ..... 125 mph (201 kph)

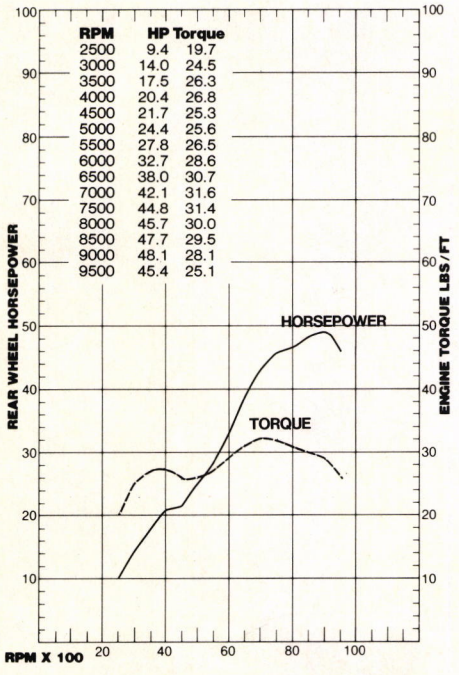
All weights and measurements are taken with machine unladen and fuel tank empty.

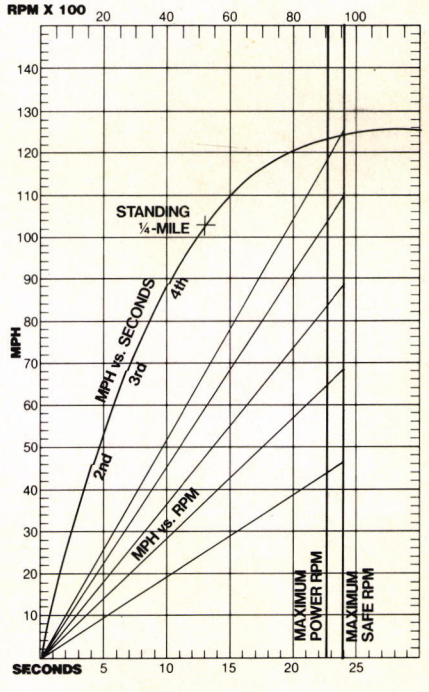


COMPARATIVE TEST DATA:

Make	Quarter-Mile, sec/mph	Top Speed, mph	Weight, lbs	Stopping Distance From 60mph, ft.
Yamaha XJ650 Eurobike	13.19/102.4	125	476	NA
Yamaha 650 Maxim	12.60/107.4	120	453	128
Honda CB650 Custom	13.10/99.8	113	447	131
Kawasaki KZ650 Custom	13.16/100.2	116	483	125
Suzuki GS750LN	12.87/103.5	120	526	129
Yamaha XS850SG	13.10/101.7	116	548	144

PERFORMANCE:





THE BMW R100RT.

This ultimate of tourers is actually lighter—with its unique integrated fairing—than other leading "big tourers" without fairings. It's also the only one delivered the way it is factory-tested, in one factory-assembled piece—instead of a boxful of parts requiring dealer assembly. New Nivomat load leveller is standard with this BMW.

THE BMW R100RS.

The true Sports Touring statement for the graduate sports rider. From its maximal European sports stance to its minimal wind resistant integral fairing. The one sports bike on the road as totally individual as its rider. Note: Both the RS and RT now feature an oil cooler, fully integrated into the lower fairing.

BMW. THE EXTRA MARGIN FOR 1981.

6 DISTINCT WAYS OF RIDING. EACH OF THEM INSPIRED BY THE DEMANDS OF THE ALPS AND THE AUTOBAHN.

Name a terrain with more hairpins than the Alps. An endurance run more gruelling than the speed limitless Autobahn.

There is one motorcycle marque, BMW, with the extra margins of engineering, road response, long life and value built in to meet those demands. Margins that make it the standard by which the other bikes are judged.

Unlike the mass-produced imported bikes, these BMWs are bred, tested and improved where they're ridden—under the world's most relentless conditions.

Each test bike is ridden an average of 1,000 kilometers per day for a month by BMW's Alpine Team.

Each test engine is also subjected to 300 continuous hours at maximum torque and maximum speed. Then studied minutely.

3 BMW Extra Margins for 1981. Three unique forward strides in motorcycle engineering that were direct results of this kind of exhaustive testing:

25 engineering refinements added. 7.5 kilograms unnecessary weight subtracted. For example, new cylinders made with even lighter, uncommonly abrasion-proof and heat-dissipating Nikasil alloy. A new, lighter clutch system that actually requires 30 percent less hand exertion to operate. Each BMW engineering advance is consistent with the BMW philosophy of trimming down weight for the most agile ride—as opposed to the old "add-on philosophy" of the mass-produced bikes.

40% better braking under rain-slick conditions. 20 different materials were tested before developing BMW's new patented "SemiMetal" brake pads which have been tested to be 40 percent more effective than conventional brakes in wet weather.

The first and only Automatic Load Leveller. One of the most significant advances in comfort and convenience for the serious tourer in years—BMW's new Nivomat operates on a unique patented compressed air principle. The Nivomat automatically and continuously fine tunes the rear suspension to additional loads and different terrains without inconvenient adjustment stops.

The BMW Margin of Value. BMW's famed ease of maintenance, its unsurpassed factory warranty, its proven endurance and resale value are the logical result of every detail of its painstaking design.

And—as a recent survey confirms—there is no more experienced, hence demanding, rider on the road than the one who chooses the individual qualities of BMW to complement his equally individual lifestyle.

BMW.

FOR ONE LONG SHINING MOMENT, STOP COMPROMISING.

For a list of authorized BMW Dealers where you can see the 1981 BMWs, please write Dept. I-11, BMW of North America Inc., Motorcycle Division, Norwood, N.J. 07648.

THE BMW R100.

This newest edition in large displacement BMWs offers the opportunity to customize to your particular riding taste with a whole range of factory-designed, tested–and therefore factory-warranteed options (unlike mass-produced bike accessories).

THE BMW R80 G/S.

The most startling–and complete–two-wheel sports touring concept ever introduced under the sport conscious BMW marque. With 800cc.'s, this most powerful of all dual purpose bikes was designed to be the ideal of two-up touring and trail-blazing alike.

THE BMW R100CS.

This new lightweight European Sports Classic possesses incredible sprint qualities. Every millimeter of its hand-painted body, custom-crafted spoke wheels and classically efficient engine is detailed for maximum performance. But it's the sum total of this classic black beauty that really turns heads when it rides into town.

THE BMW R65.

This most popular BMW midsize bike has retained its renowned low weight and agile handling advantages. Yet added nearly ten percent more power as well as a new double disc front braking system to ensure even smoother stops for this BMW whose looks are well recognized for "stopping power."

PRODUCT EVALUATION:

JT Champion Boots

Standing on top of boot hill.

• With the slogan, "If you have a $10 head, wear a $10 helmet," Bell Helmets made the world aware of high-quality head protection. Perhaps JT Racing should take the same approach in order to tell the world about high-quality motocross boots. Your feet might not contain delicate brain cells (of course, there *are* exceptions), but they do contain a lot of delicate bones. And on a motocross track, these bones are actually far more prone to injury than your head. Even so, many riders insist on wearing low-ball motocross boots. If you value your feet like we do ours, however, you'll consider wearing a pair of JT Champion Boots just like the pair that we unsuccessfully have attempted to destroy for the last two years.

In the same way an expensive helmet looks pretty much like the low-priced brand, JT boots are difficult to distinguish from the $10 variety in your dealer's showroom. At a casual look, the most obvious difference is that JT boots come in red and blue as well as the traditional black. Once you slip a pair of JT boots on you bruised feet, though, you'll have no trouble recognizing their quality.

The first thing you notice is the light weight of a pair of JTs. The second thing you notice is the soft, supple leather—and it's the latter that makes the former possible. Gaerne, the Italian company that stitches JT boots together, uses lightweight leather to reduce the heft of its boots below that of the opposition. As a result, JTs fit you almost like a pair of slippers compared to other boots, and you enjoy freedom of movement that can't be found elsewhere.

Comfort doesn't come at the expense of protection, however, largely because the JTs fit you so precisely. The usual $10 boots employ thick leather to provide support, but because the leather is difficult to shape, such boots rarely fit very well. The JTs, on the other hand, fit your feet, ankles and calves snugly. They are real second skins of support rather than just stiff leather splints. As a result, the boots prevent the excessive movement of your joints that normally results in torn muscles. That means your ankle actually does less work to support itself, despite the light leather, which makes life a lot easier on your bike.

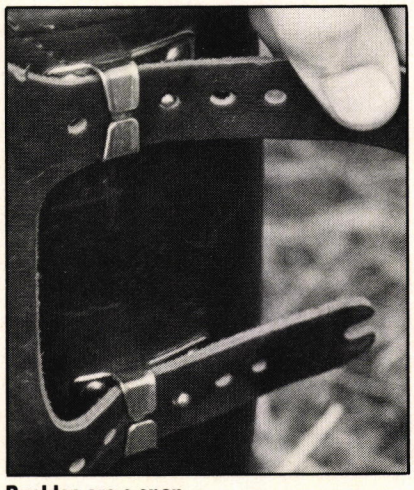
Premium buckles also make your life easier around the pits. No gimmicks or complicated engineering is required. Each of the five straps passes through a metal hoop and then is hooked over a metal post. It's easy to cinch the straps because the system is straightforward and the buckles are large enough to provide passage even to straps swollen with water and mud. As a result, the system also improves the fit of the boots, giving more protection.

If there's a chink in the armor of JT boots, it lies in the lightweight plastic shin protector. There's plenty of plastic backed by stout leather to ward off occasional blows, but it still doesn't insulate you from large rocks the way a metal alloy plate will.

Even better than the way JT boots protect your feet is that they'll do so for a long time. Editorial Director Paul Dean has worn a pair of blue JTs for almost two years, and aside from a tinkerbell curl to the toes, the boots are still going strong. Because of the one-piece leather construction used by Gaerne, there are few seams to stretch, unravel or split. What seams do reside in these boots are triple-stitched for maximum strength. Furthermore, the thick rubber soles refuse to pull away from the leather. The only durability flaw lies in the toe caps, which quickly broke on Dean's boots.

As you can see from the brand-new pair displayed in these photographs, JT boots offer the right kind of style for motocross. Even better, they protect your feet—and will do so for a long time. These boots are worth more than $10. In fact, they're worth the $142.95 that they'll cost from JT Racing USA, 303 West 35th Street, Ste.D, National City, California 92050. —*Daivd Dewhurst*

Pretty and practical to boot



Buckles are a snap

Eventually even a Champion has to retire

After two years of racing Dean's JTs look tired but work well.

WHO CARES?

Kenny Roberts, World Roadracing Champion. *"My bike makes a truckload of noise at 150 mph at Daytona. But city riding, that's a whole different thing. I use a muffler designed for my bike, and if it's not working right, I don't ride. Motorcycling is a super sport. But loud, out-of-tune machines make a lousy impression on all the non-riders out there. And that's bad for all of us."*

RIDE AWARE. SHOW YOU CARE.

MOTORCYCLE INDUSTRY COUNCIL, INC. MIC

RIDING IMPRESSION:

Blake Turbocharged Suzuki GS1100

Speed to dazzle you, but streetability to win your heart.

BY DAIN GINGERELLI

At first the blonde sitting in the passenger seat of the Firebird pretended the GS1100 and I weren't in the next lane. As we paced one another on the freeway, she seemed preoccupied, listening to her boyfriend's stereo which surely drowned out the mellow exhaust note from the turbo Suzuki's downswept exhaust pipe. But after a couple of miles, she finally looked over. Her boyfriend noticed. Without glancing at the Suzuki, he notched his Firebird's four-speed shifter into third.

The race was on.

His silver Firebird bucked slightly on the Interstate's expansion joints as it strained to build speed; I knew the race would be over in seconds. I kicked the GS1100's shifter down twice to third, then twisted the throttle to the stop. The engine's revs shot upward and found redline as boost from the turbo rushed wildly through the intake manifold. The GS became a two-wheel ICBM that exploded past the Firebird. There was no time to look as I whistled by, but the flaxen-haired beauty riding shotgun quickly learned that her boyfriend's wheezing Detroit iron was no match for the heavy-breathing GS1100. By the time I found fifth gear, the Interstate holocaust was over. As the boost gauge for the Rajay turbo reached seven psi, I witnessed the vaporization of the silver Firebird in my mirrors.

Such conquests are what you usually expect from turbocharged motorcycles. An intake charge pressurized above atmospheric levels by a turbocharger results in a substantial horsepower boost. Yet unlike most turbobikes, the GS1100 I was riding had been purring along in the slow lane only seconds before, as undemanding as a stock bike. Actually, the Suzuki indeed was essentially a stock motorcycle fresh off the showroom floor of Oklahoma Suzuki Center in Oklahoma City, Oklahoma. The only difference was the fact that the shop's owner, John Riddles, had worked with turbocharger maven Bill Blake to equip the bike with a blower. And to test the system out, Blake suggested a ride over the freeway, back roads and urban jungle in and around Oklahoma City—not an excursion to the dragstrip.

This was an important departure in turbobike testing. Most turbocharged motorcycles in the past have been built fundamentally for racing. And the combination of large carburetors and even larger turbochargers produced bikes that stumbled and coughed in city traffic and failed to produce significant boost until the tach needle reached the vicinity of the redline. Their ridability index was nearly zero.

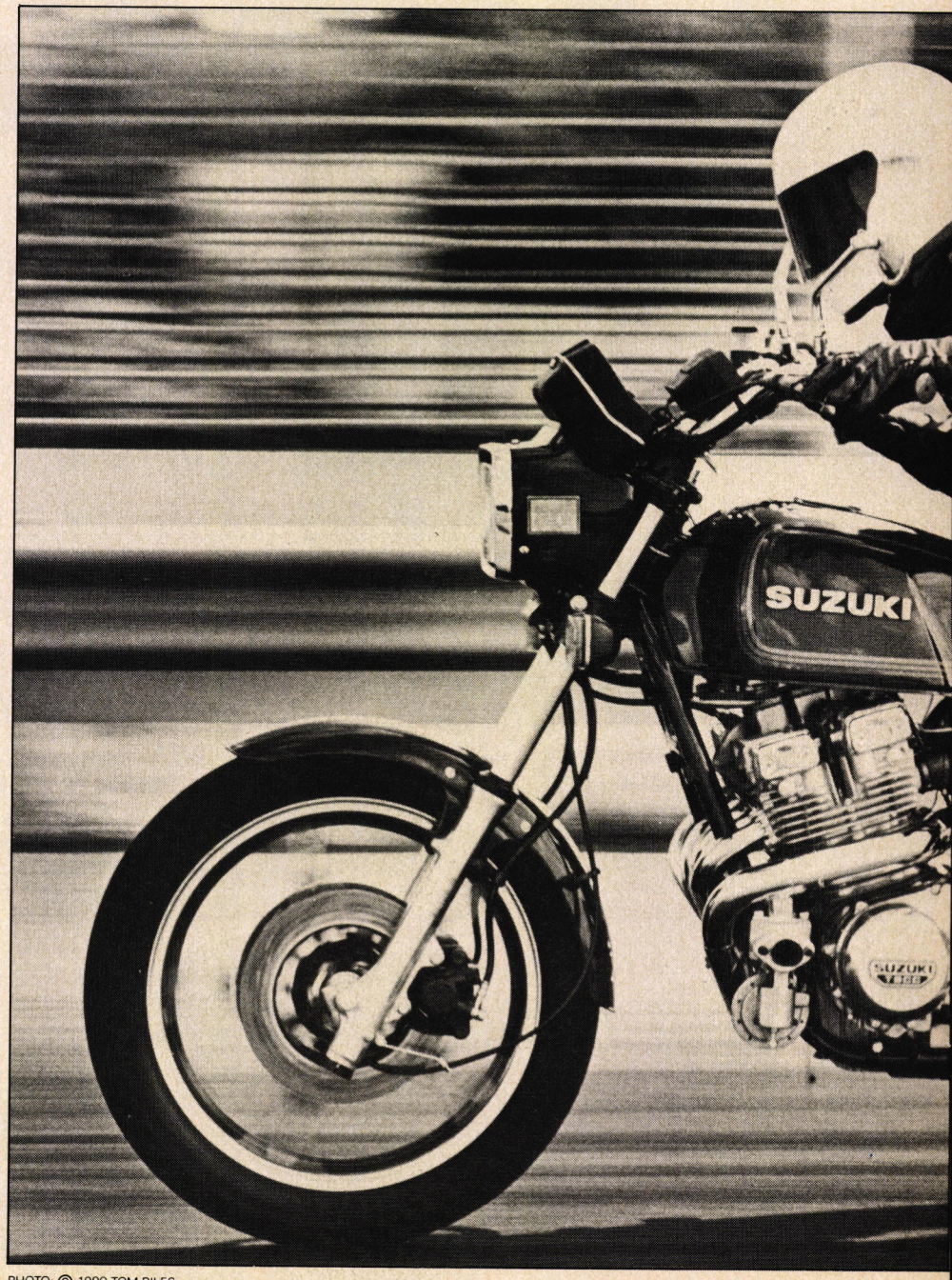
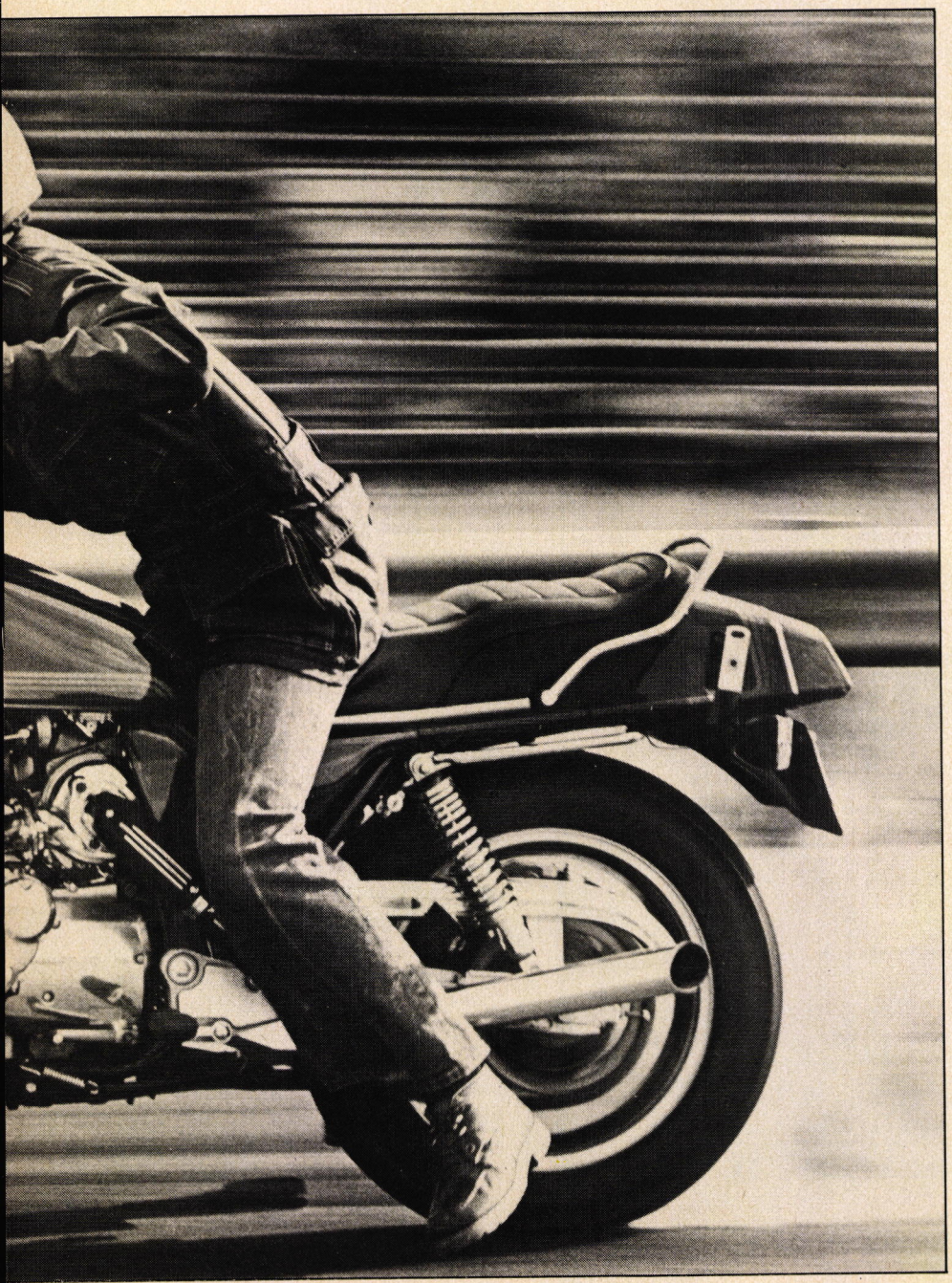


PHOTO © 1980 TOM RILES

On the other hand, Bill Blake emphasized from the first that his turbobike was a street bike, designed especially for everyday conditions. If you want, Blake will build you a semi-race turbobike using a Rajay 301F40 (40 designates the A/R ratio of the compressor) just like the GS11 bound for Road, Track and Trail Suzuki in Eau Claire, Wisconsin that I saw in Oklahoma. But because the Suzuki I used to waste the Firebird was a street bike, Blake equipped it with the Rajay 301F25 model turbo. It produces less peak boost than the F40 model, but builds it much lower in the rpm-range where street riders can actually use it.

Blake not only engineered most of his turbobike's components, he built them himself (except for the turbo and carburetor, of course), including the die-cast intake manifold and wastegate. As Blake says, "When you're a small company you sometimes have to take economic short-cuts and do things yourself." That doesn't mean Blake took any designing short-cuts, though. For example, Blake doesn't use the usual one-into-four, log-type intake manifold found on most turbo systems. Instead he uses a one-into-two-into-two manifold. The problem with a simple log manifold, Blake claims, is that intake ports one and four receive richer mixtures of atomized fuel than the middle ports two and three. This is because gasoline has a higher specific gravity than air and seeks the ends of the intake tunnel. That means the middle ports receive a greater proportion of air in the fuel charge, leaning out the center cylinders and making them run hotter. Blake's special manifold distributes the fuel mixture more evenly.



Another important feature of Blake's turbo manifold is a small lip around the initial intake orifice that catches gas droplets separated from the air. This problem is especially acute during on-and-off turbo operation—like that on the street—when the turbo isn't always boosting and the impeller blades freewheel on the shaft. The lip catches the orphaned droplets and directs them to two tiny grooves, which in turn feed each of the intake tracts. In this way, the fuel droplets are distributed evenly to be atomized in the individual intake ports, rather than being allowed to collect at the ends of the intake manifold log where they could flood the end cylinders. Every drop of fuel is accounted for, and as a result, fuel economy improves. My test ride, which included a large number of full-throttle runs, among them the vaporization of the aforementioned Firebird, netted a very reasonable 38 mpg.

Part of the Blake bike's excellent fuel economy also can be traced to the 34mm Mikuni carburetor where fuel atomization begins. It has a venturi far smaller than most turbo carbs. Also, it doesn't have the cold-start problems of other turbo carburetors. Blake has modified the Mikuni's cold starting system, rechanneling the fuel and air by external lines around the turbo impeller directly into the intake manifold. "The problem," Blake notes, "is that the impeller blades are stalled during cold-start, and tend to block the gas from reaching the cylinders." He solves the problem by short-circuiting the blockage. And I can testify that the test bike fired up quickly and didn't foul its plugs during warm- up.

Even though the Blake turbo is mild-mannered, it broadcasts a bully personality through its exhaust pipe. You might think such a stock-looking turbobike would sound unimpressive, but the hearty note from the exhaust will intimidate you. It's audible reassurance that there's more than just a stock GS1100 beneath you.

Strangely enough, Blake departed from his usual function-before-form philosophy when he designed the exhaust system. He uses a collector-type header even though it conflicts with his theory that the shortest possible header is best for turbobikes. He says, "Turbos don't need collector pipes. Since a turbo doesn't use exhaust pulses to scavenge the combustion chamber, the configuration of the header is not as important as with, say, a normally aspirated four-stroke engine." Even so, customers

Continued

Watercooling without a radiator

• Water injection is the fountain of eternal youth for highly stressed engines. Without it, motors can quickly age and die from deadly detonation. Whether turbocharged or not, any engine running close to its mechanical limit is constantly in danger of committing suicide with an overdose of detonation. Even family cars fed with poor fuel can suffer from detonation, but when a performance motor and low-octane fuel meet, the combination can be fatal. Bolting on a turbo is almost like signing a death certificate if precautions are not taken.

Boost pressure compresses the fuel charge, which in turn raises its temperature. That temperature, often as high as 350 degrees F, makes the engine even more susceptible to detonation and a messy, molten-metal death. Spraying water into the inlet manifold simply lowers the charge temperature, reducing the risk of detonation.

Aquahol injection would probably be a more accurate description, because a 50/50 blend of water and alcohol is the most efficient detonation depressant. The 50 percent of water acts as an intercooler, keeping the fuel to a safe temperature, preventing detonation. However, once inside the combustion chamber, the water is a power-sapping disadvantage. Until someone develops an internal combustion engine that runs on water, alcohol will have to be added to the injected liquid. This increases the volatility of the liquid by promoting vaporization.

A welcome side effect of aquahol injection is that carbon buildup is greatly reduced. And as Bill Blake explains, you can keep the engine even cleaner: "If you are stuck without methanol you could simply use windshield washer fluid. That is about 30 percent alcohol, and the detergent in there seems to keep things even cleaner."

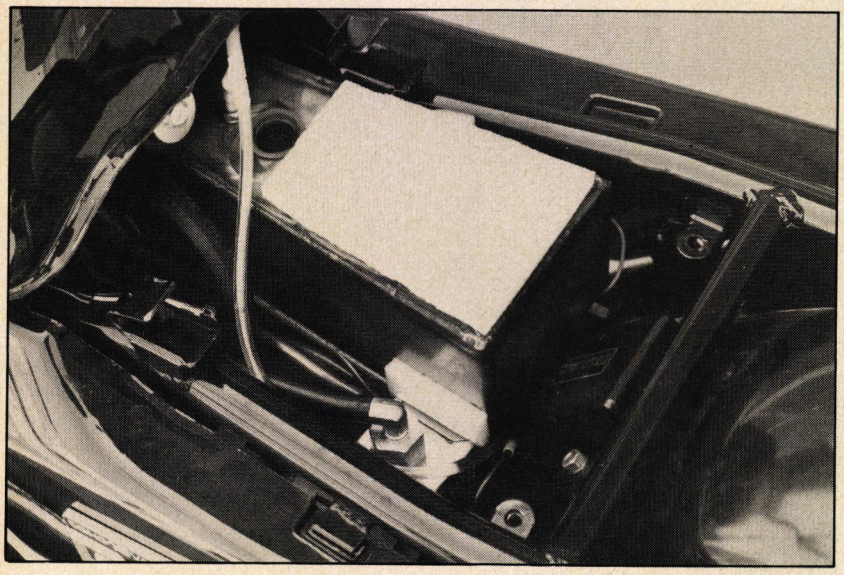
With Blake's turbo Suzuki you will only need to hunt for methanol after every five or six tanks of gas. One and one-half quarts of aquahol is stored in a stainless steel tank where the air filter used to live under the seat. And the liquid gets from there to the motor with the help of an automotive windshield washer pump.

Knowing when to inject aquahol is the job of a pressure-sensing valve in the inlet manifold. Whenever boost pressure hits four psi, the pump is actuated and liquid is forced through a restrictor to the carb. It enters the airstream as droplets, through a large hole in the Mikuni bell-mouth. As Blake explains, "With this system there is no lag and we can use plenty of boost."

Plenty, as far as Blake is concerned, is nine psi. "That is more than most people, not to mention motorcycle tires, can stand," beams Blake. But even with aquahol injection, Blake does not tout extended running at full boost. That still puts the motor close to a detonation melt-down and even aquahol injection may not save a motor from sudden and drastic changes in fuel and weather. But you will be far safer than any system without injection.

So why don't other companies market aquahol injection systems? "Mainly because the public is not technically educated enough to demand the state of the art," answers Blake: "Glossy ads and chrome sell a product that is just good enough to work." But for those wanting a little more than enough, the Blake water injection system is a proven concept. And it pushes the state-of-the art in motorcycle turbos one fast two-step forward.

—David Dewhurst



Get your Suzuki tanked-up on aquahol

Serving your motor from a wet bar under the seat.

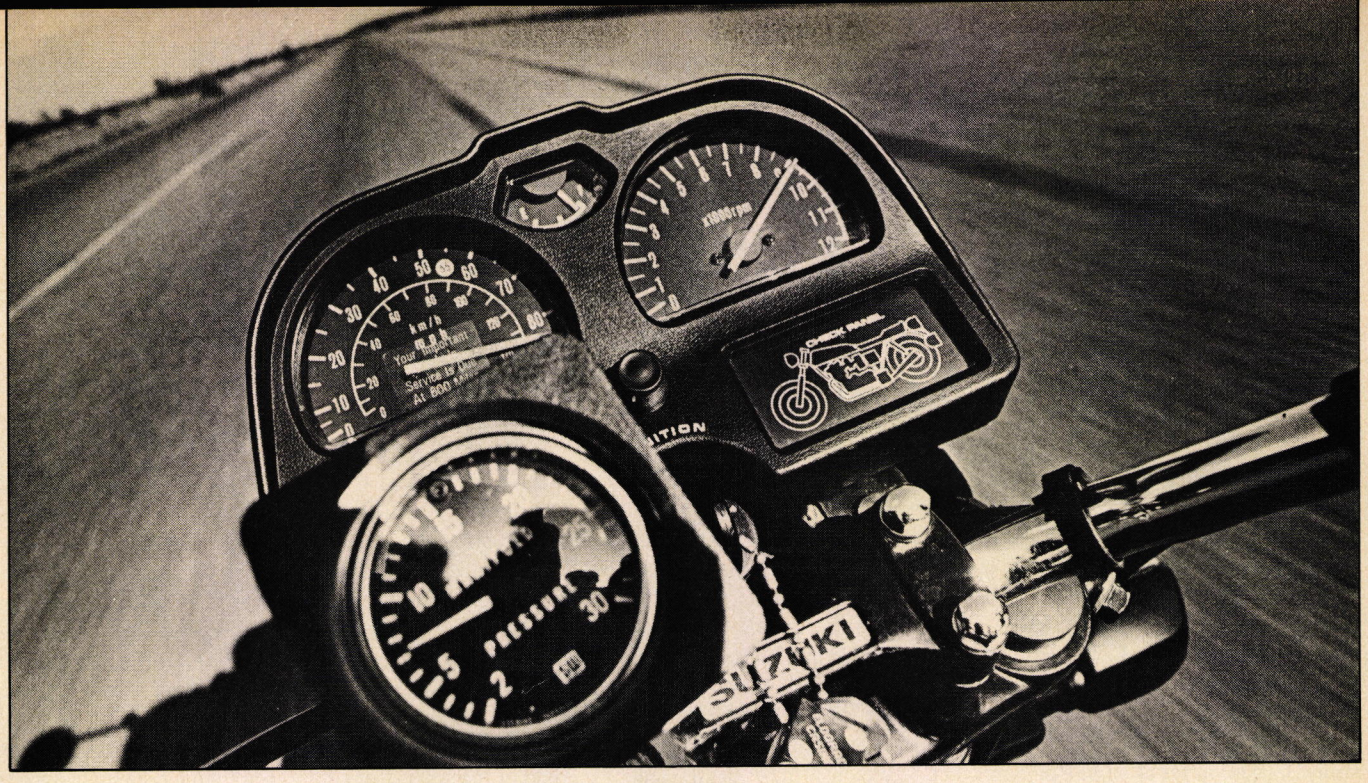
prefer the conventional-looking collector pipe rather than the more efficient log-type design that transfers heat to the turbine better.

Similar priorities determine the shape of the exhaust pipe and muffler. Blake's first turbo system had a single muffler that tucked in high and didn't interfere with the left leg of the bike's rider. Unfortunately, the more aesthetically pleasing downswept pipe fouls your leg in the typical turbobike fashion.

As with many of the turbo systems these days, the most unique thing about Blake's bike is its wastegate. This is a valve located in the exhaust manifold upstream of the turbine. It opens to allow exhaust gases to pass into the atmosphere before they reach the turbine, usually at a certain intake pressure measured in psi. In this way, the turbine will not overspeed and produce so much boost that the engine will explode. Blake's wastegate is patented under the name "Boost Pressure Modulator (BPM)." It's attached to a flange fitted on the header pipe. It is a true wastegate, not just a crude pop-off valve, because it's controlled by intake pressure, not exhaust pressure. Blake uses a few automotive parts in his wastegate and the boost-pressure spring and valve can be found on any Volkswagen parts shelf. The wastegate body, though, is cast by Blake, as is the inlet manifold. The street bike uses an aluminum casting, while a solid bronze one can be special-ordered for riding under severe conditions.

The wastegate's umbilical cord is a vacuum hose from the intake manifold that tells the bypass valve when too much pressure is in the cooker. When pressure exceeds spring-preload a four-inch diaphragm is pushed outward, which in turn activates the wastegate valve through an elbow lever. You can adjust boost pressure by turning a half-inch hex-head bolt; screw in to raise the boost, screw out to lower it. Since the diaphragm is located in the intake tract, Saab-like, while the bypass valve is in the exhaust tract, Blake's wastegate responds quicker and with more precision than an ordinary wastegate. As a result, there's little delay in the opening of the wastegate, minimizing the chances of over-boosting the engine. Unlike most wastegates the Blake linkage design cannot stick shut, risking over-boost. If fuel deposits should ever jam the valve, it can only stick open.

Blake recommends that you begin with six pounds of boost when you dial-in his turbobike. In this way, you reduce the risk of over-revving, over-boosting and overheating your engine before you understand

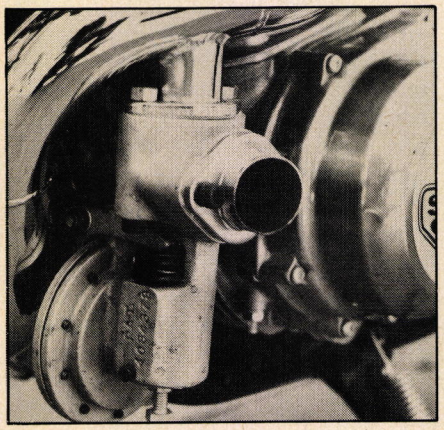


the consequences of pumping up your motor. The bike I rode was dialed to seven psi of boost. It also had Blake's water injection kit to reduce the chances of detonation—a problem in high-compression engines that run even hotter because of the turbo. During full-throttle power-plays, the boost kicked in at about 5500 rpm. Below that point, the engine performed as you would expect a stock GS1100 would with a single carburetor. In fact, the Blake bike responded more like a 750 when boost wasn't brewing. It's not slow at low revs, but the abrupt CV-carb response normally associated with the stock GS11 had disappeared, making the bike far more enjoyable to ride around town. The engine felt a lot less aggressive than a stocker at low revs—which it actually *is*, since there is only one carburetor feeding four cylinders.

As a result, the Blake turbobike chugged away from traffic lights without sputtering or any unnecessary clutch slipping, even though the air temperature was over 100 degrees F. Here at last was the perfect compromise between urban transportation and backroad bootleg-type riding, that elusive blend of personalities that turbocharging theory promises but so few turbobikes deliver. You can ride around all day on a perfectly normal motorcycle behaving perfectly normally—but once you twist the right grip against the stop, boost builds suddenly, spinning the rear tire with ease before you have a chance to roll off the throttle.

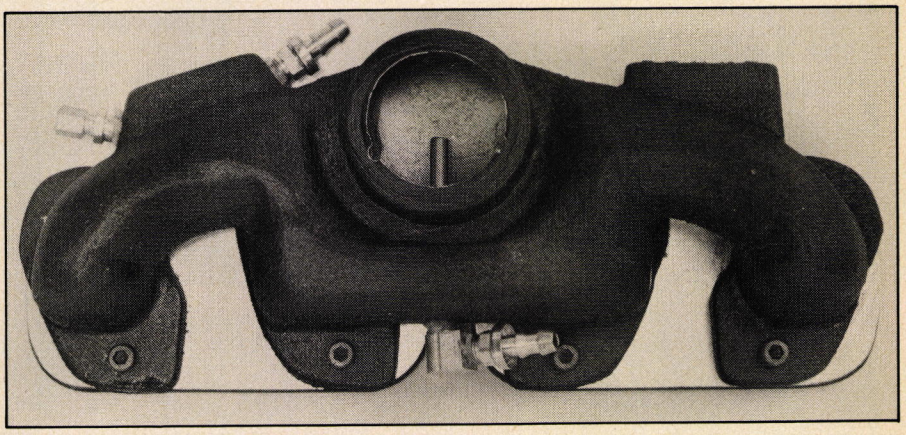
Riding around Oklahoma City convinced me that this turbobike really is meant for the street. The carburetor doesn't hamstring low-speed response, while boost arrives at a low-enough rpm to be useful. All through our experiences with Z1-R TCs, assorted ATP bikes and even the R.C. Engineering Turbo 750F (*CG*, October 1980), we've been seeking a turbobike capable of living up to our fantasies, a bike that could be a motorcycle as well as a missile. The Blake bike lives up to that ideal in every respect. It's the best turbobike that we've sat on up to now, and it provides more evidence that turbocharging is what the world is coming to.

Bill Blake builds his turbobike kits one at a time, so if you want one, you should contact him at Blake Enterprises, Route 1, Box 403, Muskogee, Oklahoma 74401. He'll discuss with you the kind of riding you intend to do, the bike you want to do it with, and tailor his kit to your needs. He'll even discuss the merits of his optional water-alcohol injection system (see sidebar, page 56) if you want the most sophisticated turbo money can buy. In any case, the $1295 you spend on a Blake turbo kit will bring you the closest you presently can come to the turbobike of the future. •



Wastegate sets boost from 2-18 psi

To regulate the pressure cooker.



Two-tunneled intake manifold

Mouth has two gas-saving grooves.

TRAIL TEST:

Suzuki PE400T Enduro

Meet the winner of the All-Midwest Two-Wheeled Tractor Pull: It's not Caterpillar Yellow for nothing. BY PAUL DEAN

Two-stroke dirt bikes tend to be an either-or proposition: it's usually a choice between trials-bike low-end grunt or race-bike top-end speed. Rarely, if ever, do you find both qualities built into the same machine.

If you've wondered, though, what it would be like to have both exceptional low- *and* high-speed performance on one machine, Suzuki's PE400T could be the answer. Because as far as engine performance is concerned, the PE can do it all. It claws up steep hills at such low revs in first gear that you can almost count the power strokes, yet four upshifts later it will zip along a fireroad at better than 90 mph. And between those extremes, the PE accelerates as though someone at the factory had bolted lights on an RM400 motocrosser by mistake.

That's quite an endorsement, and one that could leave you with the impression that the PE400T is the greatest enduro invention since dirt. It isn't. Oh, it's a competent, competitive enduro machine, all right, and a thrilling ride just about anywhere in the dirt, but thrills aren't everything in evaluating world-class enduro hardware. And when all is said and done, the one and only part of the PE400T that consistently stands above that of the competition is its engine.

If you think you already know all about that engine, if you're of a mind that Suzuki has, in typical model-crossover fashion, simply tweaked an RM400 motocross motor into enduro tune, you're wrong. The PE400's powerplant is, for the most part, an RM/PE250 bottom end fitted with an overbored top end—a combination that yields 397cc of displacement instead of the RM400's 417cc. But the difference is more than just 20cc of piston swept area; the RM's motor is a slightly undersquare long-stroker (80mm bore, 83mm stroke), whereas the PE's is a highly *over*square short-stroker (85mm bore, 70mm stroke).

According to current two-stroke design philosophy, that oversquare design should make the PE a less effective dirt racer than the RM—something about stronger low-end power and increased tractability with those long-stroke engines. But once you mount the tall saddle and dial the 36mm Mikuni wide-open, questioning the engine's performance is the last thing on your mind. Despite having a wider-ratio gearbox and more crankshaft inertia than an RM400T, despite being choked by a quieter exhaust system and a more restrictive airbox opening, and despite being 21 pounds heavier, the short-stroke PE is considerably more tractable and virtually as fast as an RM. Every time we put the bike on the track, it took an aggressive rider several laps on a good Open-class motocrosser to pass it, and only after a bit of full-on berserko riding by the rider on the MX bike.

That wouldn't be so impressive if the PE's engine weren't such a locomotive out on the trails. The extra inertia provided by the large ignition flywheel (in place of the RM's small internal rotor) helps extend the usable rpm range all the way down into the sub-idle basement. The porting, though, is radical enough to produce racer-like horsepower in the top half of the rpm range. As a result, the PE can motor along just about anywhere at any time and in any gear. It'll groan its way up any normal hill at an uncommonly low rpm, with a bit of clutch slippage required only when the going gets trials-slow. And that's with the rather tall overall first-gear ratio. If you swap the stock 15-tooth countershaft sprocket for a 14-toother, the PE will climb near-vertical hills like a refugee from a state-fair tractor pull while still being capable of almost 90 mph on the top end. Our test bike, for instance, scaled hills that foiled most other bikes before they could get two-thirds of the way up. And on upgrades that those other machines just barely conquered, the PE actually *accelerated* all the way to the top.

What this means, then, is that in its intended woodsy-trailsy habitat, the PE has a remarkably flexible engine that allows you to do just about anything you want, and without much gear-shifting. Whether it's climbing outrageously steep hills or doing infinitely long wheelies or simply transporting a fast enduro rider along the trail at warp speed, the PE offers a handful of all-day fixes for the most addicted dirt-riding horsepower junkies.

If there's any drawback to the PE's engine, in fact, it's that making full use of its tree-blurring power demands handling in the world-class league. And while the chassis generally is up to that formidable task,

PHOTO © 1980 DAVID DEWHURST

sometimes it just plain isn't. When you get the PE bounding crazily over the nasties at the speeds it's so capable of reaching, you become acutely aware of a few shortcomings that weren't evident at a slower pace.

Prominent on that list is the Kayaba rear suspension; the harder you ride, the worse those unreservoired gas shocks behave. A lack of adequate rebound damping allows the shocks to return too quickly after being compressed, which, in turn, causes them to either kick the back of the bike upward or deliver a hobby-horse ride over rough terrain. That the PE always goes straight when this happens is a credit to the integrity of the rest of its RM-based chassis; but the fact remains that the stock shocks ought to be trash-canned by any PE owner with the intention of entering any serious competition.

Most other handling-related complaints about the PE are less crucial in nature, such as the tall seat that makes footing difficult for shorter riders, or the 250-pound (dry) weight that is evident during tight maneuvers or when picking up the bike after a fall. Both factors can be compensated for by an experienced trail hand, but those still on the enduro learning curve will often curse the PE's big-man dimensions.

The tall chassis is easy enough to understand, what with around 10 inches of travel available at both ends; but finding out why the PE weighs 21 pounds more than an RM400T isn't as simple. After all, both use nearly identical chromoly frames and aluminum swingarms, and the PE's lights and oversized odometer don't weigh much at

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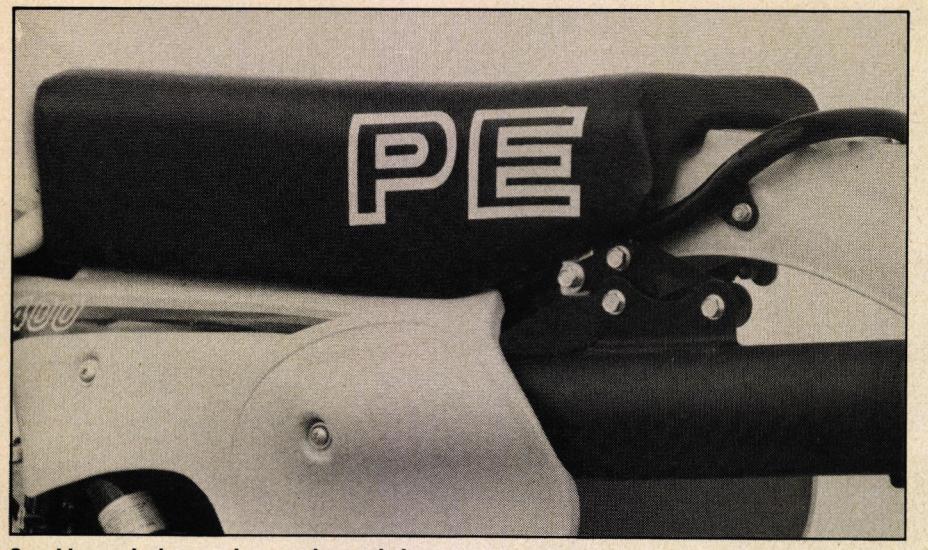
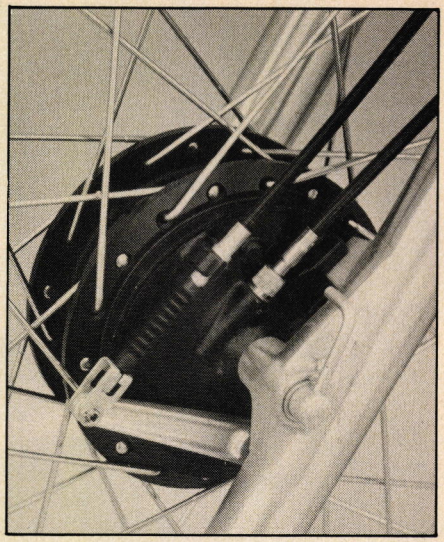


Suzuki seat design reaches an elevated plateau

Architect-designed with help from the Flat Earth Society.



Hub with integral speedo drive

Wheel removal with no loose ends.

Back To Oversquare One

• At first, the PE400T's engine seems like a remnant of Suzuki's past rather than a portent of its future. The PE's bore is more than 20 percent wider than its stroke is long, which is in direct opposition to that company's current predilection for *under*-square two-stroke motors in competition dirt bikes. After all, Suzuki claims that its long-strokers deliver more and better bottom-end power for motocross, and it's no secret that enduro bikes are even *more* dependent on that same sort of low-rev performance. So it's odd that Suzuki would reject the long-stroke RM400 MX motor as a foundation for the PE in favor of a short-stroker built up from a smaller engine.

One could, of course, speculate that Suzuki has developed new technology that allows its short-stroke engines to be superior to long-strokers for enduro riding. But the plain truth is that the long-versus-short stroke controversy didn't have a thing to do with the PE400 getting an oversquare engine. Instead, the single biggest reason for that big-bore configuration is one that certainly won't rock the very foundations of the motorcycle engineering community: primary kickstarting. Yep, you heard it right. More than anything else, the need for in-gear starting is what resulted in a short-stroke PE400.

That's not as far-fetched as it might sound. You see, John Morgan, Suzuki's enduro team manager, insisted from the beginning that the PE400 have primary kickstarting because of the time that an enduro competitor stood to lose if he had to grope for neutral every time the engine stalled. Too, many of the special tests in ISDT-type events employ dead-engine starts, and the second or so that is lost in getting the bike into gear after starting can make the difference between a gold medal and a lesser award. So since the PE400 would be a new and unproven entry in the field, Morgan felt it could achieve sales success only if it offered advantageous features comparable to those of the competition.

The problem, though, was that the RM400 engine had never had primary-kick capabilities and converting it would involve more than met the eye—new gears, added shafts, recalculated engine widths, etc. So the decision was made to use a PE250 bottom end beneath an overbored cylinder.

In the end, that conversion involved an equal number of attendant changes—new gear ratios, a heavier crank and connecting rod, recast engine cases and the like. But those modifications were still deemed worthwhile because the engineers also felt they could meet enduro-bike sound-level standards more easily with the short-stroke motor while still maintaining the targeted horsepower level. Further, the short-stroker offered longer piston-ring life merely because its piston speeds are about 12 percent less than the RM400's at any given rpm.

This issue of stroke lengths seems inconsequential, however, once you saddle up a PE400T and experience what the engine can do. It's hard to imagine the long-stroke RM motor as being able to deliver any more low-end punch or, more to the point, what on earth you would *do* with it if it did. And that's testimony to neither over- nor under-square engines, but to Suzuki's ability to squeeze the right kind of power out of *any* engine, no matter what the length of its strokes.

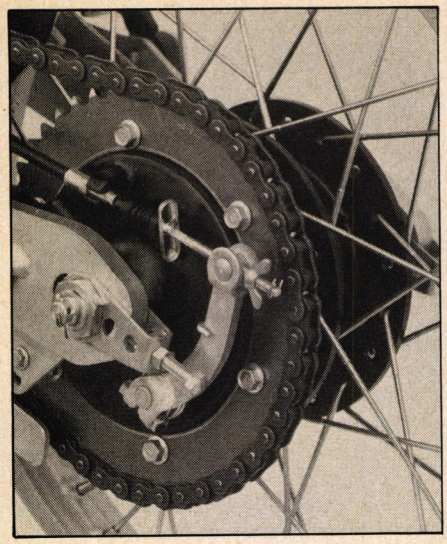
—Paul Dean

all. Also, the PE isn't burdened with the RM's remote-reservoir shocks, and the tubes in its air-spring front fork are 36mm in diameter rather than the RM's 38mm units. Granted, the Enduro does have an alloy skidplate (which, incidentally, doesn't offer adequate protection for the clutch and ignition covers) and a bulky muffler that the RM doesn't; still, neither are heavy enough to account for the weight difference.

On the other hand, much of the PE's added weight can be traced to its engine. It has primary (in-gear) kickstarting that the RM400 doesn't, a feature that adds numerous gears, shafts and assorted bits of hardware, as well as necessitating slightly wider engine cases. Also, the PE's crankshaft assembly (including the ignition flywheel) is heavier than the RM's and considerably larger than the PE250 crank around which the engine cases were originally designed. So although the PE400's engine has its roots in a 250cc motor, necessary modifications have made it account for about half of the weight differential between the PE and the RM.

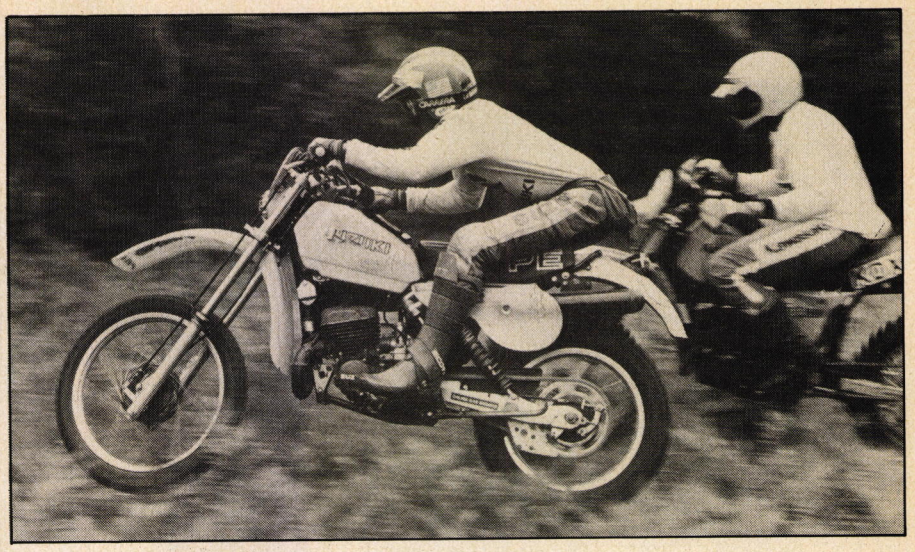
Thankfully, the PE's weight isn't so noticeable once you click it up out of first gear. Whether it's bounding through deep, sandy whoops, cutting fast laps around a track or just simply going fast on a bumpy trail, the PE always wants to track straight and true. The shocks allow the back of the bike to buck and hop, but only up-and-down, not side-to-side.

Some applause for that stability must go to the front fork. That air-assisted unit soaks up the terrain in the luxurious manner that has become normal nowadays for Kayaba forks—if not the yardstick for the suspension industry. Naturally, the fork



Heavy but simple quick-detach wheel

At the hub of an enduro problem.



Team Suzuki enduro rider Jeff Fredett at the Jack Pine Enduro

Using tips from the tuner's toolbox in national enduro competition.

must be properly tuned to be most effective, and to that end we varied the static air pressure from between 5 psi to 12 psi and juggled the level of 10-weight oil from 170mm to 200mm. We found that settings within that range will give first-rate fork action for just about any reasonable off-road riding conditions.

That couldn't happen, of course, if the fork were hung on a substandard frame—which isn't the case on the PE. For all stabilizing intents and turning purposes, an RM motocross chassis is at work in this enduro bike, so handling credentials are not in question here. The steering geometry, which is only marginally slower than an RM's, offers confidence-inspiring straight-line steadiness without impairing the bike's ability to turn; and although the RM-cloned wheelbase is short enough by today's standards to get a lot of lesser bikes in trouble, it causes no end-swapping problems on the PE, while permitting decent short-radius maneuverability in the really tight woods.

If there is a failure in the PE's ability to turn sharply, it's the center of gravity which, because of the long suspension, is unusually high for an enduro bike. Certain turns at certain low speeds bring out the worst in this aspect of the PE, especially if you have to lean the bike over further in the middle of a turn, or if a low-speed corner sneaks up on you by surprise. The PE noticeably resists being tilted over when that happens, and although it's not something that can't be handled, the point is that it *has* to be handled.

A few other negative blips on the PE's performance graph show up in its human engineering. The seat, for instance, looks (and often feels) as if it were designed

Continued

Notes From The Tuner's Toolbox

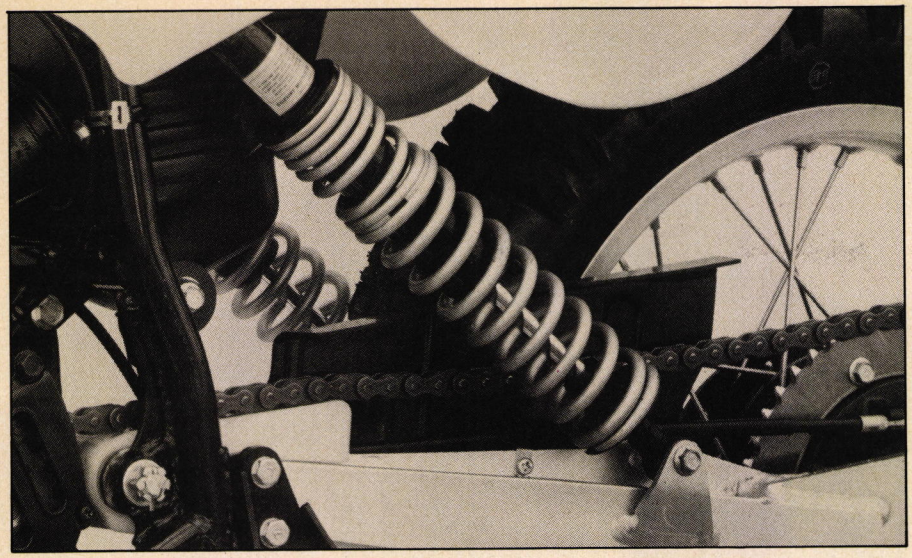
• There's no denying that right out of the crate, the PE400T is one awesome piece of enduro artillery. But like most bikes, it can be substantially improved in one afternoon of fine-tuning—the kind they don't talk about in the owner's manual.

A perfect example is the standard jetting. As delivered, it's too rich in certain spots, requiring replacement of the stock No. 300 main jet with a No. 290 and the lowering of the jet needle into one of its two leanest positions. If signs of richness still are evident at smaller throttle openings (usually at higher elevations), replace the No. 2 slide with a No. 2.5 and trade the No. 45 pilot jet for a No. 40.

Once the jetting is spot-on, the PE's throttle response will be razor-sharp, but you'll still notice that the power drops off abruptly just past the horsepower peak. That, too, can be remedied to a certain extent by an ignition-timing change, but you should do so only if you really *need* more power and are willing to sacrifice a bit of plonking ability at very low rpm. To make the change, first index the stock ignition timing by scribing two reference marks, one on the outer edge of the ignition stator plate and a corresponding one on the engine case. The circumference of the stator plate is, coincidentally, just under 360 millimeters, meaning that one millimeter at its edge is roughly equivalent to one degree of crankshaft rotation. Now advance the timing three degrees by rotating the stator clockwise three millimeters as measured at your reference marks. That small change will allow the PE to rev a bit more freely and powerfully at high rpm.

Once the engine is properly dialed-in, you might want to deal with the shocks, the handlebar and the gearing. Team Suzuki's enduro riders prefer the high-priced spread—Ohlins dampers—but S&W can supply you with less-expensive shocks that will provide much better damping than the stockers. Next, if the OEM handlebar bothers you, try an RM250/400 bar trimmed to an overall width of 29 or 30 inches. And finally, if you're likely to get into some extremely slow, almost trials-like situations, change the 15-tooth countershaft sprocket for a 14-toother to get all of the crawling ability you should ever need.

Most of these tips are things almost anyone can do and, with the exception of the shocks, are an inexpensive way to wring every last bit of performance out of the bike. Considering what the PE400 is capable of doing, that's a lot. —*Paul Dean*



Angled rear suspension with a radical motocross look

Underdamping insures that this is not an out-of-the-crate winner.

using only T-squares and straightedges. It's wide enough and properly padded but perfectly flat on top with sharp-radius corners. After a long day's ride, your sore hind quarters keep reminding you that you've been sitting on something more akin to a park bench than an easy chair. Further, even though the seat/peg/grip relationship is just about right, the bend of the handlebar angles the grips oddly. That's why many of Team Suzuki's enduro riders have switched to RM bars that they've narrowed to suit their tastes.

Perhaps the worst thing about the handlebar, though, is the amount of vibration that comes through it. At high revs our PE buzzed so badly that the grips often felt as big around as water glasses; and that vibration also accounted for the departure of an exhaust-pipe mount, for the engine-mount bolts continually working loose and for the early demise of the odometer. We've ridden two other PE400s that did not vibrate as badly as ours, however, which suggests that perhaps the crankshaft in our bike did not get trued as accurately as it should have at the factory.

Other than pieces that shook themselves into submission, the only reliability problem we encountered was sparkplug fouling. Three plugs fouled during a test that covered sufficient mileage to bald-head the stock 5.10x18 Dunlop K290 rear knobby. We finally traced the plug problem to a too-rich fuel mixture—a condition we remedied with simple re-jetting. And no one was upset when the tire wore out, for we were unimpressed with its performance, anyway. There might be places where these Dunlops are suitable for a high-powered Open-class enduro bike, but we didn't ride over any of them.

You can, of course, point to things like the tires, seat and shocks to conclude that the PE400T is not a serious enduro bike, that it's just a quick-and-dirty model disgorged from Suzuki's interchangeable-parts bin. But if you look past those few items you'll see that the PE is not something designed just to use up a lot of left-over RM hardware. Look at the quick-detach rear wheel (the best QD wheel design ever found on a Japanese motorcycle), the 3.4-gallon gas tank (bigger than most Japanese enduro-bike tanks), the straight-pull throttle (the first from Japan), the built-on tool-bag perch on the rear fender (although no bag is included) and even the clever little all-in-one "wrench" clipped to the front fork. Look at them and then *feel* what the engine can do, and you'll know once and for all that whatever its shortcomings, this is no half- hearted effort. This, friends, is a competitive, for-real enduro motorcycle with a magnificently *un*real engine. •

Ride Review

• The PE400 has an amazing motor. Anything that will operate at a walking pace *and* 92 mph must be admired. Unfortunately, it never really worked for me at either speed. Sure, the motor was awe-inspiring, but somehow the rest of the bike never really clicked.

For a machine with only 10 inches of averagely suspended travel, the Suzuki is unacceptably tall in the saddle. Even my 34-inch inside leg measurement was stretched to climb aboard. In the slow trails the same problem persisted, and the PE's 250-pound running weight did nothing to alleviate it.

Fast trails were no more comfortable for me, either. Again, the weight and the height of the machine made slides very difficult. I never forgot for a moment that I was riding a large motorcycle. Making the machine even harder to live with were the vibration of the motor and the familiar Suzuki banging. Some of the vibration might have been peculiar to our motor, but the clatter was not. Combined, they made a long day in the saddle seem even longer. And that is just not what enduro bikes are meant to do. All of which make the PE only half-successful in my mind. With a better chassis I could think of it as an amazing motorcycle instead of just an amazing motor.

—David Dewhurst

• Ride a PE400 in the woods and you'll never be afraid of losing your forward momentum against a fallen tree, a mudhole or an impassable hillside again. There's no object that can withstand the irresistible force contained within the PE400's amazing engine. After a few miles on the trail, you get the impression that you're riding the world's most agile battering ram, a big yellow bulldozer capable of cutting a swathe through the roughest country.

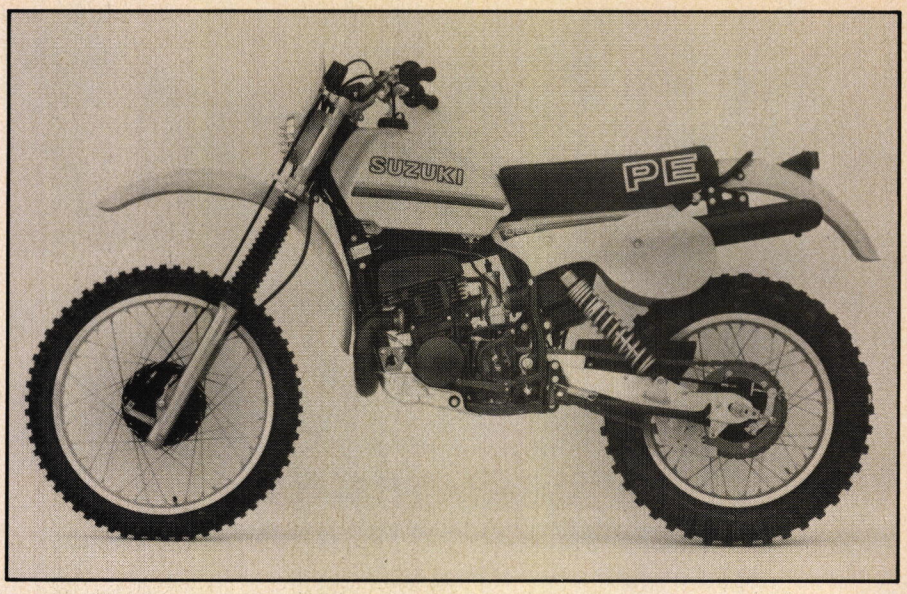
But because the Suzuki's irresistible force depends on horsepower rather than agility, it tires me out quickly on the trail. The riding position suits me, although the ground seems as if it's several stories below, but it's necessary to keep a tight rein on the horsepower when there are trees on every side. Perhaps the PE400's motor delivers power predictably for a big bike, but whenever I crank on the throttle, I never know quite where I'm going to land. Suddenly the trail seems twice as narrow as before. There's plenty of power to deal with the obstacles ahead, but I'm afraid to use it.

I guess I'm not totally convinced that such an awesomely powerful engine belongs in the woods, even though I like a reserve of horsepower as much as anybody. For me, riding the PE400 in close quarters is like trying to swing a sledgehammer in a broom closet.

—Michael Jordan

Continued

Suzuki PE400T Enduro



SPECIFICATIONS:

IMPORTER: U.S. Suzuki Motor Co.
13767 Freeway Drive
Santa Fe Springs, California 90670

CATEGORY: enduro

SUGGESTED RETAIL PRICE: $1899

ENGINE

Type ..... two-stroke vertical single
Port arrangement ..... one piston-controlled intake, one reed-valve-controlled intake, six transfers, one exhaust
Bore and stroke ..... 85.0mm x 70.0mm
Displacement 397.2cc
Compression ratio (corrected) 7.3:1
Carburetion ..... one 36mm Mikuni slide/needle
Air filter ..... two-stage washable oiled foam element
Lubrication ..... pre-mixed fuel and oil
Starting system ..... primary kick
Ignition ..... external-flywheel magneto CDI
Charging system ..... none; direct AC lighting

DRIVETRAIN

Primary drive type ..... straight-cut gear
Primary drive ratio 2.280:1
Clutch ..... wet, multi-plate
Final drive type ..... #520 chain (⅝-in. pitch, ¼-in. width)
Final drive ratio 15/46: 3.066:1

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.64	18.45	4.14
II	2.00	13.98	5.45
III	1.56	10.92	6.98
IV	1.22	8.54	8.93
V	1.00	6.99	10.91

SUSPENSION/WHEEL TRAVEL, IN.

Front ..... air-spring, 36mm stanchion tube diameter/9.5 in. (241mm)
Rear ..... 3-way adjustable spring preload/10.4 in. (264mm)

BRAKES

Front ..... drum, single-leading shoe
Rear ..... drum, single-leading shoe, cable-operated

TIRES

Front ..... 3.00x21 Dunlop Sports K290
Rear ..... 5.10x18 Dunlop Sports K290

DIMENSIONS AND CAPACITIES

Weight ..... 250 lbs. (113kg)
Weight distribution ..... 46.4% front, 53.6% rear
Wheelbase ..... 56.0 to 57.1 in. (142 to 145cm)
Seat height ..... 37.0 in. (940mm)
Handlebar width ..... 32.5 in. (826mm)
Footpeg height ..... 15.6 in. (397mm)
Ground clearance ..... 12.5 in. (318mm), at skid plate
Steering head angle ..... 29.6 degrees from vertical
Front wheel trail ..... 4.92 in. (125mm)
Frame ..... tubular chromoly steel, single front downtube
Fuel tank ..... plastic, 3.4 gal. (12.7l), no reserve
Instrumentation ..... tripmeter resettable in tenths

PERFORMANCE

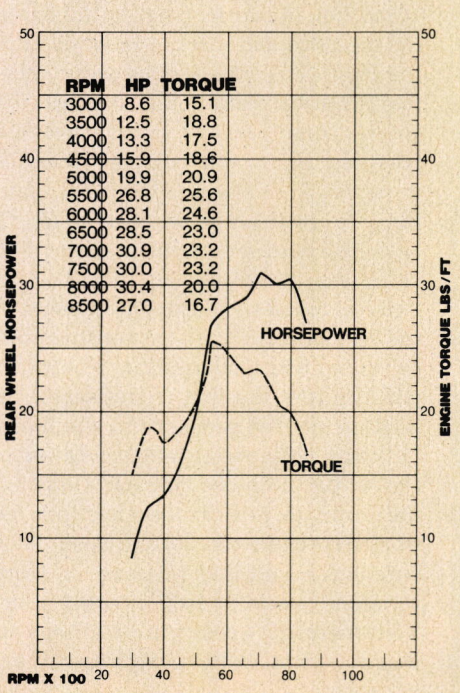
Top speed (clocked) ..... 92 mph (148 kph)

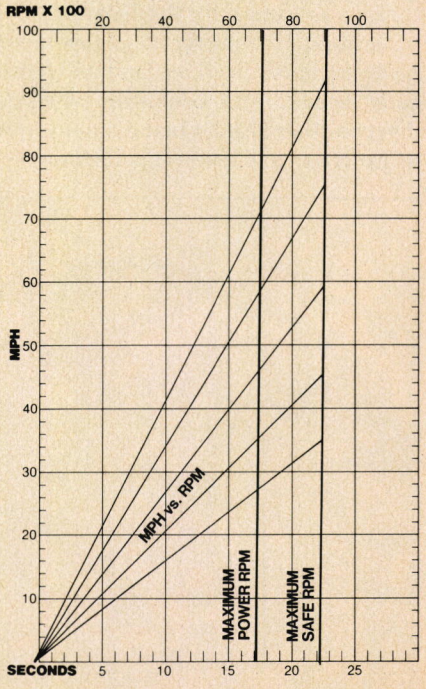
All weights and measurements are taken with machine unladen and fuel tank empty.

COMPARATIVE TEST DATA:

Make & Model	Horsepower	Wheel Travel Front/Rear, in.	Weight (fuel tank empty), lb.	Weight bias Front/Rear percent	Transmission, number of speeds
Suzuki PE400	30.9	11.3/11.3	250	46.4/53.6	5
Husqvarna 420AXC	NA	11.5/11.9	239	45.6/54.4	4
Yamaha YZ465	39.4	11.2/11.8	228	46.5/53.5	5
Can-Am 250 Qualifier III	25.2	9.7/9.8	230	44.3/55.7	6
Husqvarna 250WR	21.9	9.5/9.5	238	44.1/55.9	6
Yamaha IT250G	27.7	9.8/9.8	244	43.4/56.6	6

PERFORMANCE:





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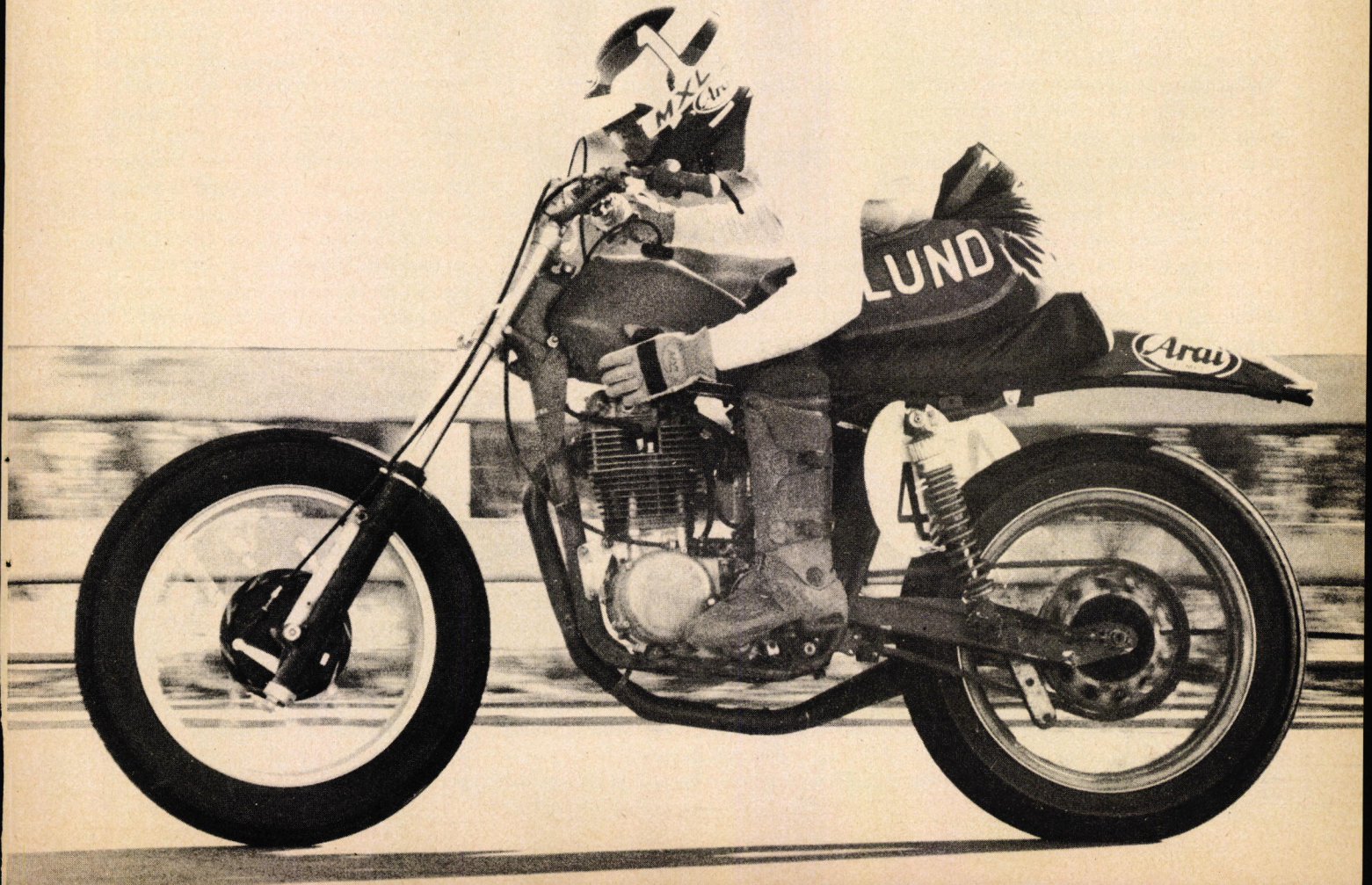


The 29-Percent Solution

To rutted clay, road bond, fresh oil and other hazards of the rural outback.

BY GEORGE C. LARSON

Street motorcycles are perfectly all right off the pavement. Sure, and you can swim in peanut butter, too. Riding street motorcycles off-road—or at least off-pavement—may be one of life's least attractive activities, but there's no use denying that some of us are forced to do just that.

Some recent figures from the Motorcycle Industry Council show that two out of three motorcycles registered in the U.S. are street machines: No surprise there. But what startles me is that about 29 percent of the street machinery performs off-road duty at least part-time. And do you want to know what it's like for us 29-percenters? It's not pretty, let me tell you.

Except for the months when the lake out back turns to ice, I've been accustomed to using my aging but spirited street motorcycle nearly every day on the round trip from my house, which lies in an unincorporated and very rural piece of country, to the nearest little town, where I maintain a post office box and find the goods and services necessary to what passes for a normal life. I cover the same stretch of road every day, and it's the kind of ride that becomes so familiar that you spend your time thinking about weird stuff like Islamic politics instead of worrying about whether you've missed a turnoff. Almost every rider I know has a piece of road like that, the kind of stretch that you ride because you have to—to work, say—but that offers enough familiar challenge to let you relax and truly enjoy the motorcycle. Funny, but in an automobile, the same route becomes absolutely boring, so the motorcycle is doubly attractive: It uses less fuel and makes an altogether routine trip fun.

There's only one drawback to my idyllic little setup: there's this nasty stretch of unpaved road between the house and the asphalt two-laner that takes me to town. Somehow, I have to get me and the motorcycle to that asphalt, for which the bike was designed, by traversing this rutted, slippery stretch of clay, for which it was not.

To be honest, the road is not exactly in its natural, pure-clay state. Whenever the washboard ruts and the craters reach half a wheel's diameter in depth, somebody phones the county and out trundles a big, orange truck, which spreads a layer of stuff they call "road bond." For those of you who are unfamiliar with road bond, allow me a capsule description.

Road bond is a mixture of gravel, grit and some gray stuff that looks like a natural fiber laxative but is probably condemned Portland cement. And scattered throughout road bond—I am absolutely convinced that this is true though I admittedly lack proof—are tiny little written D.O.T. warnings that read, "Do NOT ride motorcycles on this surface."

Perhaps with some reason. Riding on road bond is like trying to catch live machine-gun fire in the watch pocket of your Levi's. Road bond is an invention of the devil to fool nice people who live in the South into thinking that their roads have been "improved." Dry road bond is a paving contractor's answer to barbed wire. Wet road bond is not unlike shredded wheat that sat too long in the milk.

There is another form of pavement that we 29-percenters get for our tax money. It is the great American commodity you see advertised on temporary, yellow, diamond-shaped road signs:

Fresh Oil.

When your hard clay road gets dry as pottery in the summer, every passing wheel raises a roostertail of beige dust that is borne aloft to embed itself in your air filter, your cat and tonight's salad. Somebody with sensitive air tubes is sure to phone the county again, and this time they send out a big, orange tanker to spray Fresh Oil. The purpose of the oil is to congeal the dust and to lubricate the tires of your motorcycle.

The typical country dirt road in the rural portion of these United States is bad enough for a bike rider without the ministrations of local government, and after they get through with it, it is no longer a road but something altogether different. And when you launch in your 500-pound portable kidney puncher, with its stiff suspension and street gearing, you feel as much at home as a three-toed sloth on a beach ball.

Trouble is, some of the finest roads around here are unpaved, and missing out because my motorcycle isn't comfortable on them—and I'm not either—is not only contrary to some of the reasons why I ride a bike in the first place, it's also completely unnecessary. It turns out there is a special kind of motorcycle that is precisely configured to the kind of riding we 29-percenters do most, and if we'd just take off the blinders, we could become truly happy people. The machines in question are called dual-purpose motorcycles, and as I hope to pursuade you, that classification is part of the reason why these motorcycles tend to elude us when they're really the solution to our riding situation.

Honda's XL500S serves as an example of the genre. In fact, it's the Cadillac of the class. It is a perfectly straightforward dual-purpose on-road/off-road motorcycle, meaning that it has all the minimum lighting equipment and provision for a license tag to make it legal on the street, but at heart, it's a dirt bike that's been modified. So, having identified the archetypal multi-role bike, CYCLE GUIDE put me in the saddle to find out how a good dual-purpose bike would change the world for a hard-core 29-percenter like me.

Continued

PHOTO © 1980 CHRIS EASTMAN

As I soon found out, the big, one-lung Honda is an altogether different proposition from my street bike, both in feeling and personality. With this kind of machine, the world alters in an unexpected way. Not only is the short stretch to the asphalt more fun than the asphalt itself, but I now find myself turning left instead of right at the driveway's end to follow the unpaved county road eastward. It forms a shortcut up and over the mountain, then takes me downhill through a series of heavily wooded hairpins laced with needles of sunlight that form great shafts in the light morning haze.

This motorcycle will handle nearly anything if you ride concentrating on the throttle and gears. The suspension has been sired by all the generations of motorcrossers that preceded it, and although it probably would never win a dirt race, the XL shows me with stunning clarity just how much the lessons of dirt racing can do for a machine that I pretend to use for a business purpose. If there is any obstacle to my transition to this type of motorcycle, it is the mental one of establishing the limits to my own confidence. I still believe that this bike can handle much more than I ask of it.

The road spits me out of the woods like a smiling gumball into the little town of Etowah, North Carolina. The ride to the post office, boring in the car, sort of fun on the street motorcycle, has now become sheer joy. Give me your clay, road bond, Fresh Oil—the works. I'm ready.

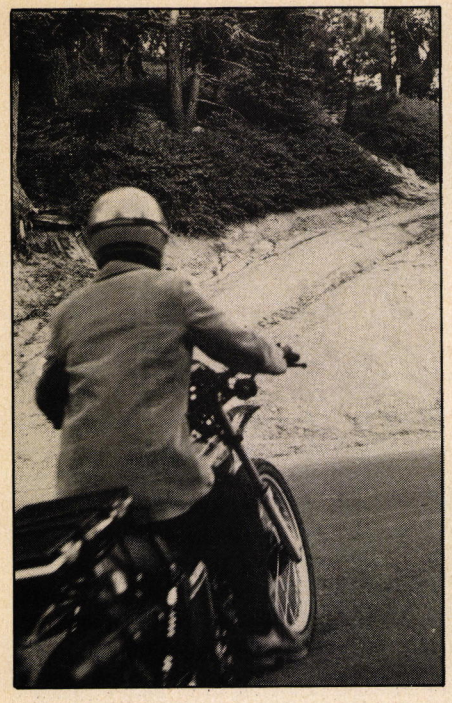
I start finding powerline roads, logging roads, back ways to all sorts of places. What's more, this 268-pound mule of a machine is tuned into the environment as no street machine could ever hope to be. It feels capable and even eager. But to a true 29-percenter, the first worry is going to be, "Yeah, but what do I give up on the pavement in the trade?"

Some. A little handling change, I found. The steering forces will feel different but not overwhelming; you'll get used to it. The overall lightness of the bike compensates, so that your summary impression may well be one of enhanced agility, not the reverse. And if, like me, you thought these thumpers ate gasoline and vibrated the rivets loose on the highway, forget it. The real surprise was that the XL500S topped 70 mpg on my longest highway trip (a run up the Interstate from Atlanta).

The dual-purpose bike as a breed lacks only one major concession to us 29-percenters: an electric starter. The compression release on the XL is automatic, and the thumper is easy enough to kickstart, but since it starts life already heavier than a competition off-roader, it is measurably more awkward to restart when you stall it in some gully with the front wheel pointed toward the moon. But that kind of complaint

Early-morning hole-shot finds our hero out in front, with a freeway full of fender benders scattered in Turn One

The first moto ends when you punch the time clock. There's an eight-hour break for you to rest for the second moto.



is symptomatic of the way we look at this class of machinery, and it's an important part of why we 29-percenters tend to miss the personal connection in these motorcycles. One phase of the mental transition to the dual-purpose bike for us is that we must come to see them as My Motorcycle, something that is right and personal, not an oddball. We have to readjust our prejudices about motorcycles and stop seeing multi-role bikes as compromises, as either-or, neither-nor motorcycles.

A street motorcycle is, after all, made for the street. No dual-purpose bike can beat it there. In the same way, the pure motocrosser is perfectly attuned to its own world, and it'll handle anything the terrain can throw at it; but it's perfectly awful on pavement. If you remember Robert McNamara's F-111, you probably understand the origin of prejudice against compromises. "No machine can be all things to all people," more or less says it. The obstacle that the 29-percenter has to overcome is the notion of the dual-purpose motorcycle as a machine that is nothing more than mediocre in two elements.

The lesson in this Honda, for me, is that such rationalizations just don't matter. They don't really mean anything. The dual nature of the motorcycle is really a distracting and irrelevant facet of its talent. These are the motorcycles made for us 29-percenters, and the quality about them that is paramount is that they turn our kind of world into an amusement park. Like the man once said about a Chevrolet, it gets you where you want to go. These sweethearts do what we want a motorcycle to do, and in one particular element—the unpaved back road—better than any other machine. They are to us what the Jeep is to the four-wheeler. Granted, there is more dirt bike in them than there is of the street, but if that's what it takes to deliver this kind of performance, so be it. The only reasons you have trouble fitting this class of motorcycle into your life is because you never made room for it on the conceptual shelf.

Maybe the best thing we could do for these motorcycles is simply to quit calling them "dual-purpose" and find a better descriptor. Better, because dual-purpose motorcycles are really single-purpose motorcycles, when you get right down to it. For us 29-percenters, they are the appropriate replacement for the "street" bike because they're better all-around for our kind of riding than a street machine. And also better than the pure motocrosser for me for the simple reason that I can ride 'em to the post office. So why are we so often making excuses for these babies?

These motorcycles, I'm convinced, are only beginning to come into their own. The future, which holds great promise of squeezing tight on every drop of joy, should pave the way for devices that open the door to life's playground. In fact, I'm sure that their competence has largely been obscured this long because of a label that is misleading and unfortunate. If you get off your street machine and onto one of these, there is no painful adjustment to make. These are capable, back-country rides, kind of like the bushplanes of the motorcycle world. And if I didn't think you'd make fun of the term "bushbikes" I'd seriously suggest it. But the hell with what you ought to call them. If you are one of the 29-percenters who white-knuckle around with a street machine on the dirt roads in the back country, you're going to find these the most liberating experience you've ever had on a motorcycle. •

After a five-day race week, most 29-percenters find relaxation in riding the trail

After all, you can't spend your entire life racing—take time for some fun.

PRODUCT EVALUATION:

Swarup

A search for power in turbulent times.

• It is just human nature to want something for nothing. That motivation is what makes game shows, tax dodges and the like so attractive. It is also why so many motorcyclists have lately taken note of Swarup. Advertisements for the device don't pinpoint what the product *is*, but they do make enough spectacular claims about what it will do to attract every something-for-nothing freak in America.

Whether you want more power, better fuel economy or a variety of other engine improvements, Swarup claims to have the answer. Unfortunately, those same claims have been made time and time again—for such dubious products as gas pills, power plugs and Motor Honey. It does tend to make you wonder: Why not use them all and get 300-plus mpg and 200 percent more horsepower?

So, wary of the free-lunch syndrome, I approached Swarup with reservations. But rather than allow any prejudice to influence the evaluation, I relied on laboratory results to prove or disprove the claims. And there was plenty of information that could be checked in the calculating confines of the lab, since Swarup makes some very specific claims about its product.

Most inviting for the street rider are promises of 10-20 percent better fuel economy, with an equal increase in power. Other touted benefits include extended engine life, easier starting, lower emissions, cooler, smoother running and reduced carbon buildup within the combustion chambers.

At $68.95 to equip a four-cylinder machine, Swarup doesn't come close to giving you something for nothing. Still, you expect some serious technology for your investment. With that in mind, you might be surprised to open the box and find four metal pressings that look for all the world like cookie cutters. Just like some 25-cent item you could pick up in the kitchenware section of a grocery store, the Swarups are flimsy metal stampings.

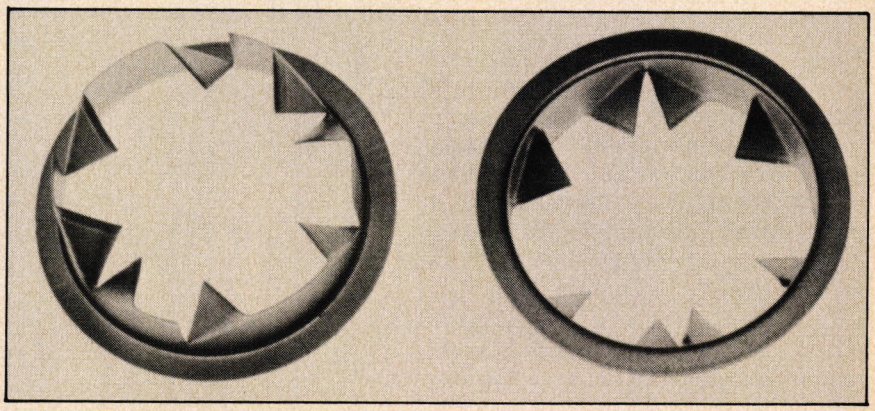
Unlike a cooking aid, however, the Swarup is designed to work its magic when fitted between carburetor and motor. Small, bent-over protrusions inside the Swarup cause turbulence in the fuel/air mixture as it is drawn into the engine. Swirling the fuel charge is nothing new—Suzuki employs the same principle in its TSCC bikes. However, rather than being machined into the combustion chambers as on the Suzukis, the Swarup is a simple press-fit in the inlet boot.

Fitting and refitting the devices to our long-term test CB750F was not altogether simple. Removing a bank of carburetors is a time-consuming affair, and getting each carb back inside its proper rubber inlet boot was complicated by the Swarup. Following the instructions for inserting or removing the devices took about one hour each time.

To remove as many variables as possible, our tests were run back-to-back, first with and then without the Swarups in place. First on the list was a dynamometer run. Totally impassionate, the dyno spun and the gauges moved to produce the first figures in the test. Swarup actually delivered a performance boost. To be sure, it was not the 10-20 percent increase the ad claimed, not even five percent. But it was an improvement; the kitted engine produced 1.6 percent more power at 5000 rpm.

Unfortunately, that was the maximum increase, and it didn't come for nothing. At 7000 rpm the Swarup pulled a quick reverse and lost exactly as much as it had gained. All the way through the rev range the power curves with and without the Swarups were so close that only the dyno could measure the difference. On the street, only a severely over-revved imagination could detect any sort of a difference.

What the street riding did uncover, though, was a slight improvement in gas mileage. Less than three percent was the average—again, well short of the 10-20 per-



Taking a close look at every side of the Swarup dice

Loaded so that which ever way they fall you end up losing.

cent claims made by Swarup. Taking into account current costs for gasoline and the $68.95 pricetag on four Swarups throws some shade on the whole arrangement; you would have to ride more than 80,000 miles to recoup your investment.

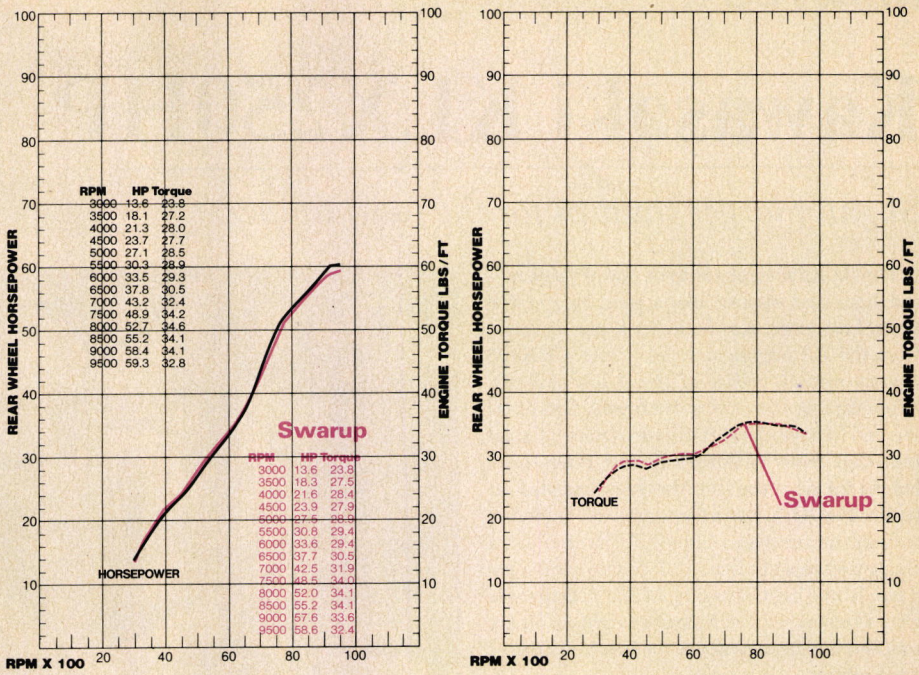
Verification of that mileage figure came from the laboratory, where the kitted Honda just bettered the three percent gain during an EPA emissions test. However, this chemical measurement of consumption under ideal conditions always produces slightly optimistic figures, explaining why "your mileage may differ."

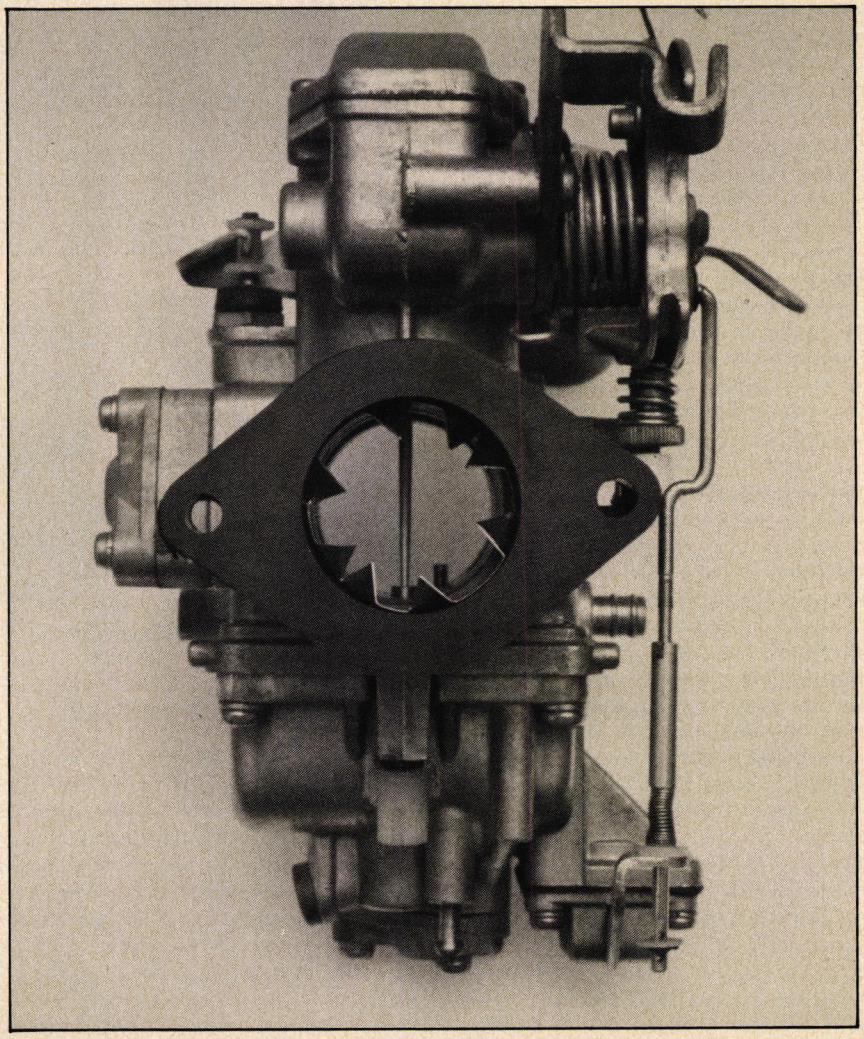
While the gas mileage had been bettered fractionally by the Swarup, the certified test also showed that the Honda's emissions had been affected as well. During four LA4 tests with the Swarup and three without, the CB750F showed an eight percent decrease in carbon monoxide emissions with the Swarup in place. But what was gained on the CO swing was lost on the hydrocarbon roundabout, where the exhaust sniffer recorded a full 10 percent more unburned hydrocarbons with the Swarup fitted. The hydrocarbon increase indicates a less-complete combustion of the fuel charge, while lower CO levels tend to support Swarup's claims that the engine will run cooler, a sure path to reduced CO.

Thus far in the test the performance scale was a bit light on the Swarup side. Any slight gains were more than outweighed by disadvantages. Better starting and smoother running were not evident, so the bike went for the final quantitative test at the dragstrip. A few runs without the Swarup produced a 12.716 at 105.88. Since the dyno had already confirmed a Swarup-induced loss of power at maximum rpm, the drag strip performance of the Swarupped engine should have been slower. It was. The kitted bike was 0.1 second and 1.11 mph slower. The best run for the Swarup was 12.847 at 104.77 mph.

Personal doubts about Swarup's effectiveness were clinically confirmed in the lab. Each area of its claimed performance was evaluated and compared to stock performance, with only two improvements recorded. All told, the slightly lower operating temperature was of small practical use—an oil cooler would probably produce a larger drop in engine temperature—and the small gain in gas mileage was all but insignificant. Based on the device's actual measured performance, it falls in with the gas-pill crowd. It is a costly investment that shows no signs of giving a return for the money. But given the natural attraction for something that slices, dices and makes Julienne fries, the Swarup will probably be around until the next wonder cure hits the market. Swarup is available through Sekon International Corp. of America, 2211 Wilshire Blvd., Suite 577, Santa Monica, California 90403.

—David Dewhurst





Swarup's shark fangs fitted between the carburetor and motor

Tiny tin teeth caught in the jaws of a turbulent storm.

MINITEST:

Kawasaki KLX250HP

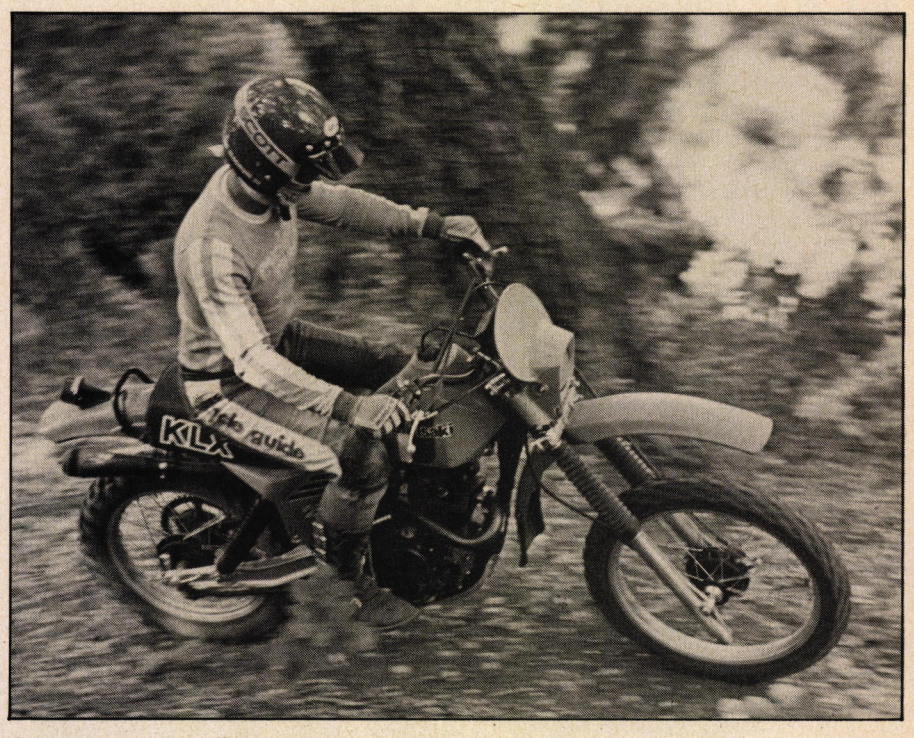
Slightly larger thumps for the funthumper.

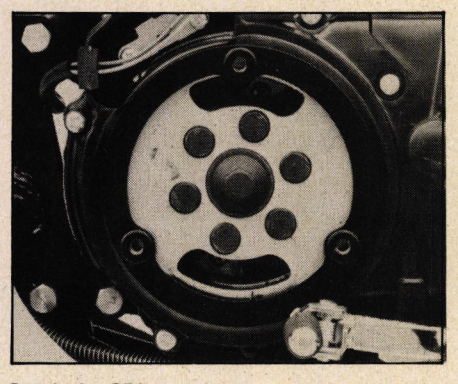
• The KLX250 happens to be one of those motorcycles that seemed like a good idea at the time. Last year, Kawasaki took one cylinder from the Z-1 engine and slid it into a KX125 chassis with 10 inches of travel fore and aft. After stirring the combination well, Kawasaki seemed to have the sort of four-stroke off-road bike that many of America's dirt riders have longed for since the last Matchless crawled off to die. The KLX was a funthumper—intended to be far better than a clumsy TT500 and just a shade less capable than a 175cc two-stroke enduro. It was light, it was agile and it made you grin. I remember that I climbed right up on my soapbox and proclaimed it the first playduro of the Eighties.

After a year's time, the KLX has been crowned with a lot of other titles—and unfortunately most of them relate to a severe lack of speed. True enough, the little twin-valve Kawasaki motor pumps out a fair amount of torque right off idle, but then the curve remains as flat as a billiard table from kickstart speed to valve float. The engine's predictable power delivery earns it high marks, but its index of responsiveness ranks with that of a diesel tractor. As a result, this year's batch of KLXs has been passed up for the most part in favor of the KDX175 enduro, even though the formerly optional enduro light and tripmeter are standard equipment on the 1980 all-green four-stroke.

To bolster the KLX's appeal on the trail as well as on the showroom floor, Kawasaki has developed a special high-performance kit for it. The kit consists of stronger S&W valve springs, an exhaust system ⅜-inch larger throughout fitted with a Super-Trapp spark arrestor/muffler and a new camshaft. The new cam opens the intake valve quicker and farther than before. Duration remains the same, but the valve stays fully open longer. The exhaust valve opens slightly later than before, but its duration is the same and lift has been increased just as with the intake valve. All these changes help the KLX breathe better, and are supposed to increase power at peak rpm without compromising the strength of the motor's lower end. Even so, use of the HP kit voids the KLX's warranty.

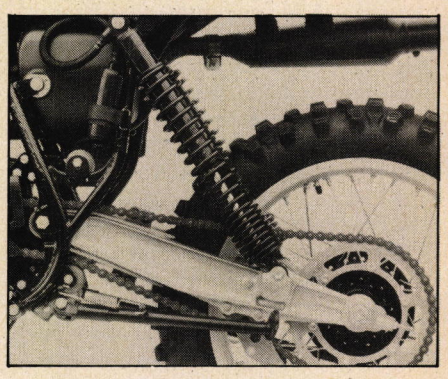
The parts list doesn't make much of a difference in the KLX's performance on the dirt, however. Peak power is increased fractionally, but a stock TT250 will still comfortably outperform the KLX on acceleration. The power pulses transmitted to the ground from the kitted bike still won't trigger any seismographs and the rooster tail thrown by the rear wheel remains of the same modest proportions as before. The HP-kit has just made the KLX a lot louder, that's all.





Sparks by CDI

Long-term lightning for the KLX.



Massive forged-aluminum swingarm

Matching KDX metal to KX shocks.

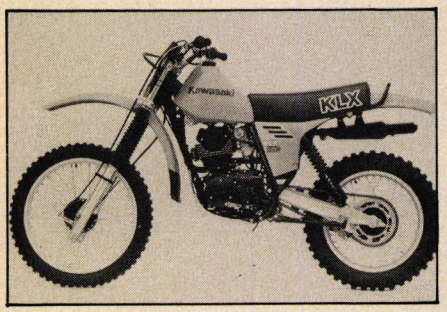
Yet the kit still has merit, for you soon discover that the Kawasaki four-stroke revs quicker thanks to its $200 worth of artificial respiration. That means better response at part-throttle. You can ask for a fast blast of rpm in order to dodge an obstacle with confidence for a change, because the engine builds rpm quickly enough to maintain the bike's momentum. It's as if a potato had been dislodged from the exhaust pipe. The bike doesn't go much faster or get places much quicker, but at least you no longer feel as if you're riding into a head wind.

But if you expected the HP kit to give your KLX religion, you'll be disappointed. The front wheel won't come up without a mighty yank—there's an awful lot of weight on the front wheel to contend with, for one thing—and the rear wheel won't pop sideways for you unless you're riding in mud. But you won't grow bored with the bike the first time you click into fifth gear and find yourself asking, "Is that all there is?" That's because the KLX250 remains a fine trailbike with world-class handling, and the HP-kitted engine carries you up grades and over obstacles that the bone-stock engine would flinch at.

The KLX attracted attention in 1979 because it minimized the handicaps of a four-stroke engine in terms of weight and handling. The KLX250HP should attract your attention

Slow but sure is the KLX's motto

Taming trails instead of hills.



KAWASAKI KLX250HP

Importer: Kawasaki Motor Corporation
2009 East Edinger Avenue
Santa Ana, California 92711

Category	trail
Suggested retail price	$1818.95
Engine type	four-stroke vertical single
Valve arrangement	single overhead camshaft, two valves per cylinder
Bore and stroke	70mm x 64mm
Displacement	246.3cc
Carburetion	one 32mm Mikuni slide / needle
Gearbox	5-speed
Front fork / wheel travel	air-spring, 36mm stanchion tube diameter / 9.8 in. (250mm)
Rear shocks / wheel travel	5-way adjustable spring preload / 10.5 in. (267mm)
Wheelbase	56 to 57 in. (142.2 to 144.8cm)
Seat height	36.5 in. (927mm)
Weight	240 lbs. (109kg)

for much the same reason, for the high-performance kit minimizes the effects of the four-stroke motor's lazy throttle response. The KLX still isn't whippet-like but it's a lot closer to being right than before.

The only question that remains is whether $200 and a voided warranty is too heavy a price to pay for a KLX that's still slow, no matter how much response is improved. A similar amount of money, after all, will go much further at Poweroll or White Brothers if it's earth-shaking power you require. The kitted KLX gives you a bike better than the stocker, but still short of the four-stroke of your dreams.

—*Michael Jordan*

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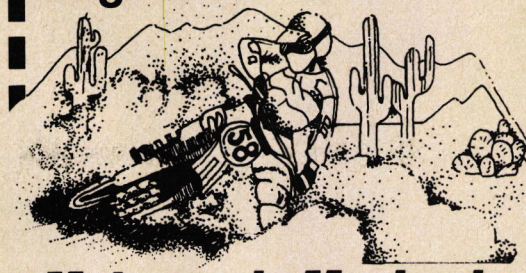

Mail to:
Motorcycle Mechanics Institute
Department CG
22246 N. 19th Ave.
Phoenix, Arizona 85027

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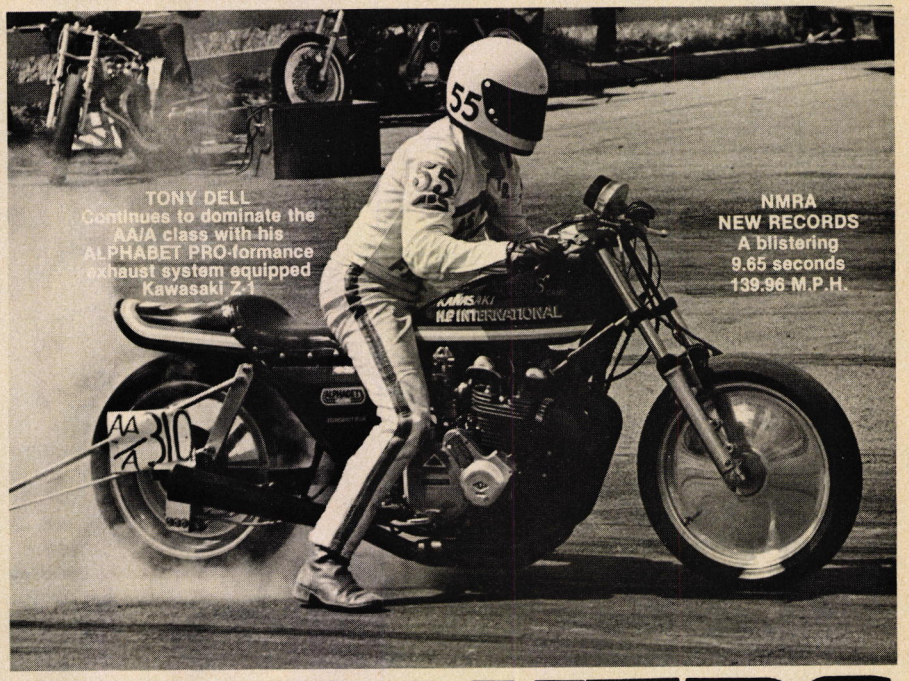
THE RECORD



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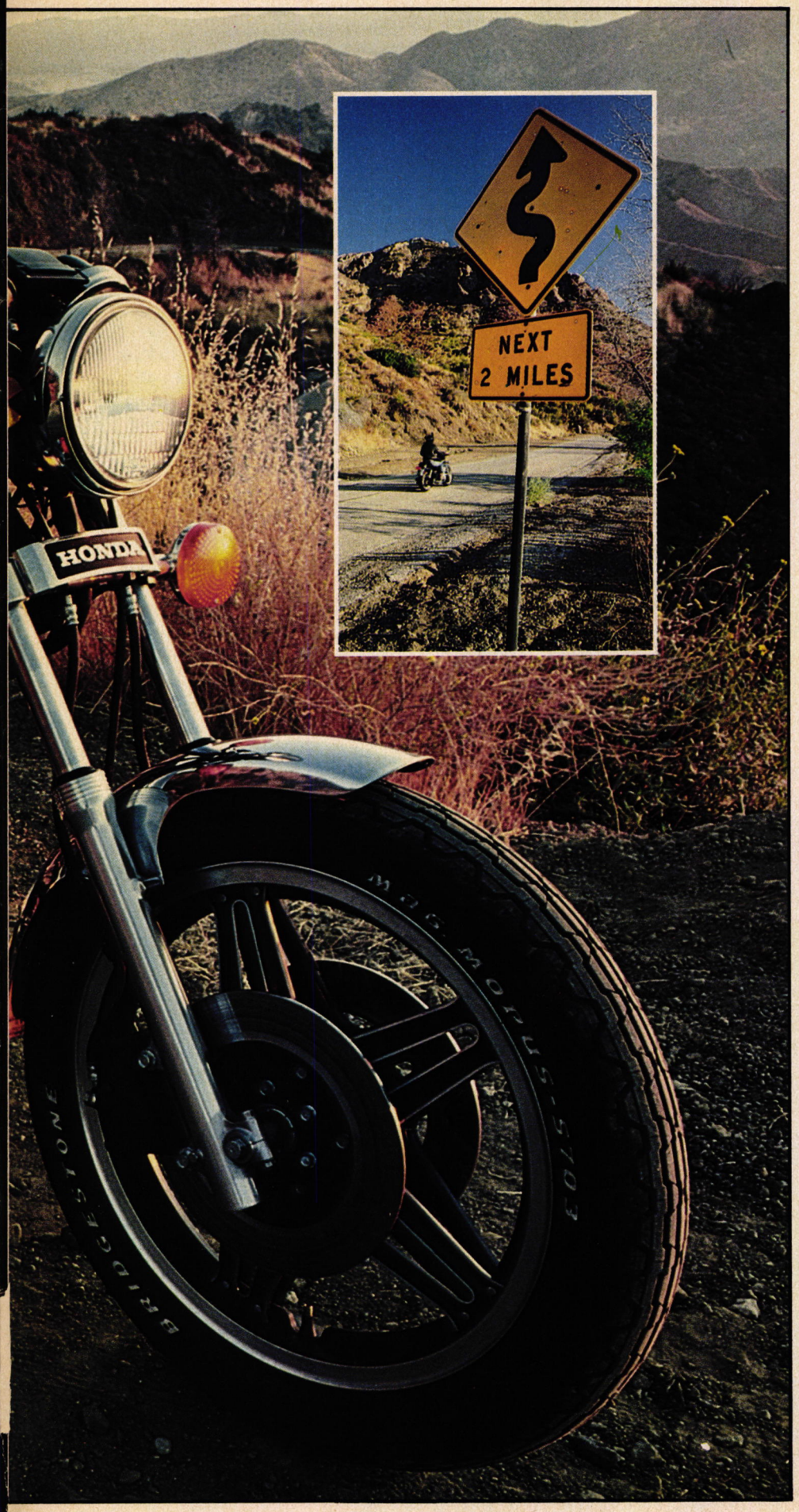
Honda CB750 Custom

Saturday-night style can't disguise a bike that yearns for Sunday mornings.

BY MICHAEL JORDAN

PHOTOGRAPHY © 1980 CHRIS EASTMAN



The Honda 750 never changes, really. It's one of the great constants of the American motorcycle scene. The hardware keeps pace with the leading edge of technology, new configurations attract special-interest groups and the production numbers ebb and flow; but through it all, the same image pops into your mind when the words "Honda 750" are spoken: four cylinders, four pipes and flank speed. For 1981, the Honda CB750 Custom broadcasts this message just as clearly as the original.

Most of America is tuned to the Custom's wavelength. It outsells Honda's F-type and K-model combined. In fact, it has become the mainstream Honda 750, even though it wasn't really a part of Honda's new generation of 750s when those models were introduced in 1979. The Custom actually started life as that year's Limited Edition, meant to ease the transition between the old-style 750 and the new generation of 16-valve bikes, while simultaneously functioning as a test-marketing tool in the burgeoning custom field. The LTD's combination of traditional Honda styling devices, ComStar wheels and four pipes demonstrated an ability to attract the mainstream Honda enthusiast, even though the K-model was supposed to have been assigned this task. As a result, the pure Custom model was introduced last year, styled in the same pseudo-British idiom as the CB900C.

Styling ranks as the highest priority on the 750-shopper's buying guide, so for 1981 Honda has concentrated on investing the CB750C with a major-league act thanks to a new bag of hardware and styling licks. Right up front, you notice the two-tone paint. Then there's the raised white-letter tires, a signature of musclecars since the Sixties and now the calling-card of musclebikes. In the past, tire manufacturers were reluctant to equip bikes with such tires because sulfur in the carcass gradually turned the letters yellow. But now Bridgestone and Dunlop use a layer of rubber as insulation between the plugs for the white letters and the carcass in order to solve this problem.

Honda takes another hint from four-wheel stylists with its lights. To begin with, a halogen headlight, long overdue on 750 Hondas, gives you night vision to match the engine's thrust potential, making the previous sealed beam seem like a penlight in comparison. A new Honda Engineering Standard also specifies different lighting for the instruments, which are now illuminated from behind the dials. The translucent numerals glow with Buick-like congeniality, easing the transition of your eyes from the dash to the darkness.

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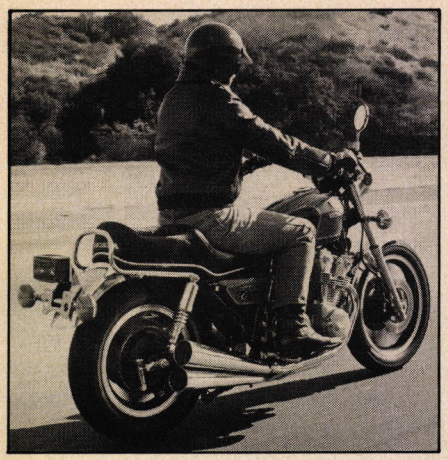
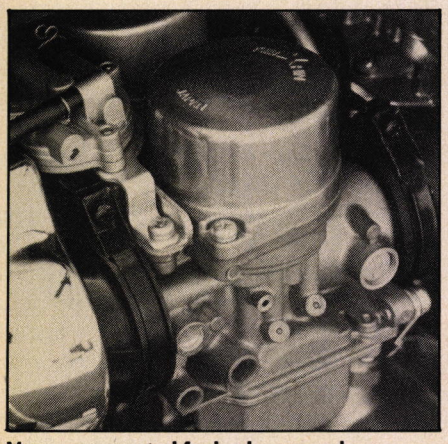
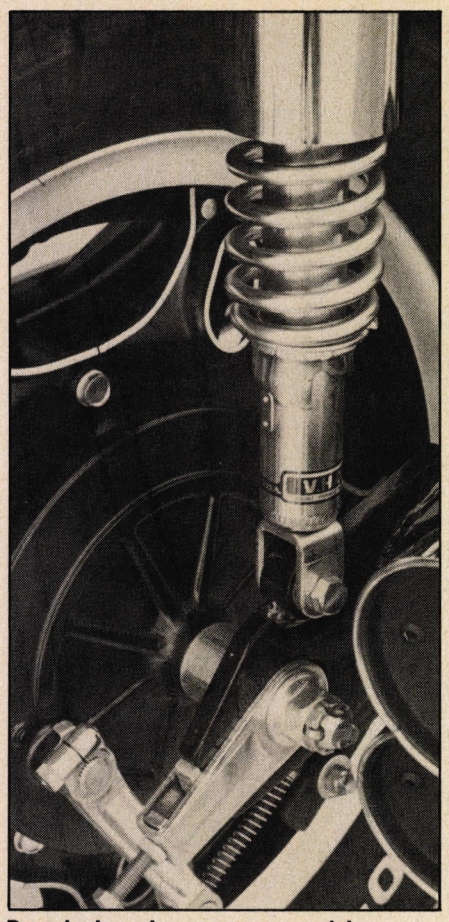




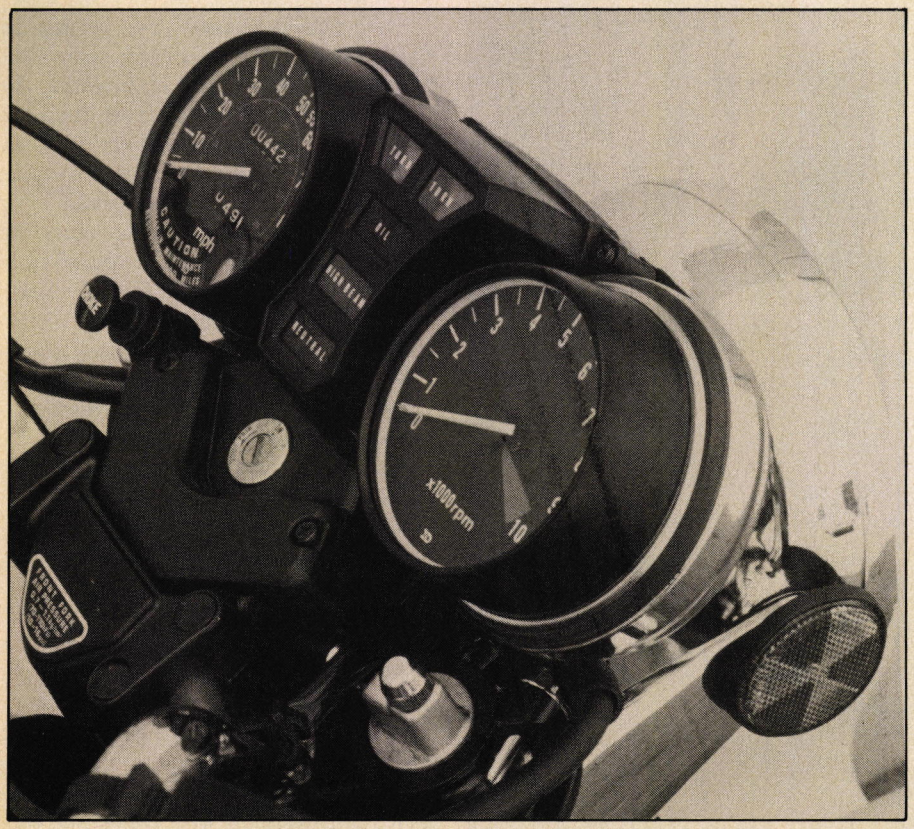
Vacuum-operated fuel valve on carbs

No different from an auto-petcock.



Drum brake reduces unsprung weight

But VHDs keep you from feeling it.



Air-spring fork keeps the CB750C stable when both needles challenge their pegs.

Glowing Buick-like instrumentation can't dim the F-type heritage entirely.

One more automotive-like feature is a vacuum-controlled fuel valve that is fitted so you don't have to bother with turning the gas tap on and off. Unlike Suzuki, however, Honda fortunately has resisted the temptation to discard the petcock control altogether; you still have a manually operated reserve that gives you a psychological margin whenever you want to get the most from your bike's cruising range.

Aside from these styling refinements, the 750C's comfort quotient also has been upgraded. Since motorcycle riders finally have learned that an appreciation of comfort doesn't automatically brand you as a wimp, the seat is the first place you detect this newfound regard for creature comforts. What already was the best OEM custom-style seat has grown 10mm thicker, while the lip of the bucket has retreated 25mm to the rear, affording more room to maneuver your tired cheeks on long rides. The passenger lip of the bucket has moved back 15mm, shrinking passenger space slightly, but compensation lies in new footpeg rubbers that use an internal air cushion to isolate vibration.

More important to Custom comfort is the fact that the suspension has been improved as well. At the rear of the C-model this comes in the form of a new name for the shocks: It now says VHD (Variable Hydraulic Damping) on the label instead of FVQ (Full Variable Quality). The spring and damping rates remain the same as those of last year's 750C, and indeed the shocks work much the same—three stages of rebound damping are available according to how much the shock is compressed. The VHD designation celebrates an upgraded spring, better shaft sealing and one-piece shock body to improve durability. Claims of that sort, however, are better evaluated at the 10,000-mile mark than in the 1500 miles we racked up during our customary testing cycle.

Up front, the attempt to improve the CB750C's rider comfort is more serious with a leading-axle, air-spring fork. The combination of springing and damping at 10 psi of air pressure produces a wheel rate identical to last year's, but there are a number of new tricks in this fork to improve its compliance over small bumps. Two anti-stiction bushings are used, one at the top of the slider and the other at the bottom of the fork tube, since Honda's test results indicate that a second bushing reduces stiction 25 percent over the use of just one such bushing. This is an important consideration because a leading-axle fork can bind slightly over small bumps, and because this fork does not feature an increase in tube-to-slider overlap to cope

with the problem (the fork leg below the axle is hollow and strictly cosmetic). Elsewhere in the fork, the springs are twin-rate, with a softer initial and final rate than last year's triple-rate springs.

On the road, the CB750C's fork lives up to everything Honda and Showa engineers expected from it. Instead of the plush-but-spongy feel many air-spring forks deliver, the Custom's fork climbs over the battlefield beneath its tire crisply and with precision. The tire stays on the ground where it belongs while the bike maintains its equilibrium without pitching forward onto its nose at every crater. This accomplishment in ride quality is all the more remarkable for the fact that the front end carries an added dose of unsprung weight over last year's. The dual disc brakes from the F-type are fitted instead of the single disc carried on the '79 bike.

Even the front end's merits cannot disguise the C-model's fundamentally choppy ride, however. The bike dips into the troughs of the sea of pavement under full control, but whenever the surface grows rough, the Custom hammers through the waves with the unyielding authority of a Coast Guard icebreaker. Even the thicker seat can't keep the shockwaves from rippling up your spine and rattling your brain case. The fault lies largely with the shocks, which despite their new name display a resistance to abrupt compression in the FVQ tradition. A switch to the CB900C's incredible air-spring shocks perhaps could solve a lot of problems, but the C-model's shock-mounting system unfortunately isn't compatible with them. Even the F-type's adjustable shocks are too long. So it seems that only some aftermarket dampers could bring harmony to the way the C-model cruises the blacktop.

There's just one problem, however, with applying Buick-like standards of comfort to the C-model: It isn't meant to *be* a Buick. You can smooth out the rough edges of the chassis, but you'll never be able to disguise the filling-shattering harmonics of the 16-valve engine with its jackshaft, Hy-vo-type chains and straight-cut gears any more than you can disguise the high-spirited nature of a thoroughbred. Honda's light-flywheel, four-cylinder engine is capable of propelling the Custom to a 12.68-second quarter mile at 105.26 mph—and it feels like it at every second. It sizzles with vibration you can feel in the seat, the handlebar and even the fork tubes. Granted, the engine proves far more flexible than you'd expect from such a package, pulling from 4000 rpm with some authority. But it's still the kind of powerplant that makes your heart flutter. And because it also makes the sheet-metal of the fuel tank flutter, it isn't an engine you'd care to straddle for more than a half-day trip.

The CB750C really yearns for roads where the tachometer can run free across the dial. For all its mainstream, non-sporting styling, this bike really excels at just what its siblings do—carving the fast line around corners. Even Honda has recognized this, and so has gone to some lengths to help you straighten out your favorite stretch of curves beyond the city limits.

For example, simply grafting a custom-style leading-axle fork to the CB750C's chassis would have drastically shortened the trail but lengthened the wheelbase, resulting in some wonky steering characteristics. So to preserve the razor-sharp response that has become the hallmark of this new generation of Honda 750s, the C-model's triple-clamp offset has been juggled in the same way that Yamaha did with the introduction of its XS750 Special. The clamps angle the fork tubes 2.5 degrees

Continued

Charting the Changes

Engine: Addition of vacuum-operated fuel valve retaining manually operated reserve position.

Drivetrain: none.

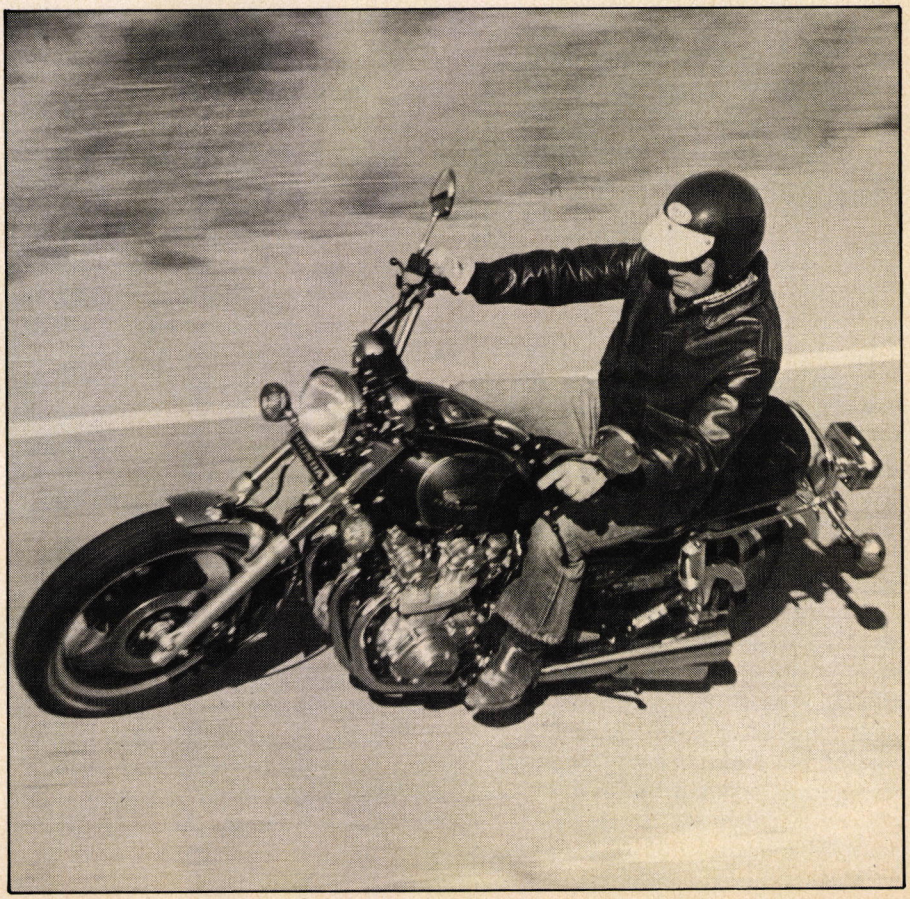
Suspension: Switch to leading-axle air-spring fork with equalizer line from conventional straight-leg fork. Oil capacity reduced 29 percent to increase air volume. Dual-rate spring substituted for triple-rate spring. Fork has twin anti-stiction bushings instead of one. Rear shocks feature one-piece shock body, upgraded spring and better sealing around damper shaft. Shocks' spring and damping rates remain the same.

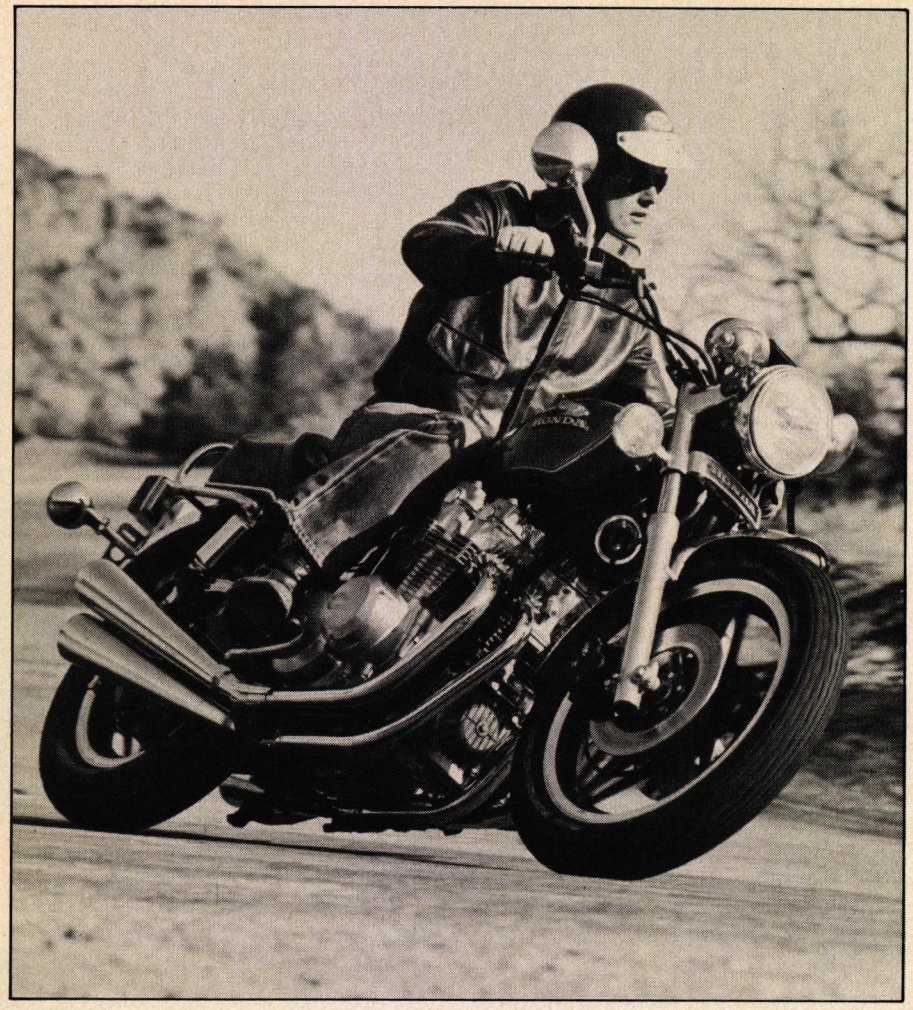
Brakes: Switch to dual 10.9-inch discs in front from single 11.7-inch disc. New, lighter master cylinder with upgraded brake-light switch.

Tires: Same dimensions as before. Tubeless again also. Recommended air pressures front and rear now 32/32 psi instead of 28/32 psi. New raised white letters.

Dimensions and capacities: Wheelbase increased 0.2 inches. Steering head decreased 0.25 degrees. Trail reduced 0.2 inches.

Details: New 55/60-watt halogen headlight replaces conventional 50/65-watt headlight. Seat configuration changed. Improved vibration isolation from passenger pegs. Two-tone paint. New instrument lighting. Exhaust pipes tucked in for more ground clearance.





more steeply than the steering head itself, and that, in concert with a 0.25-degree decrease in steering-head angle, produces only 5mm less trail than last year and a 0.2-inch increase in wheelbase. As a result, the CB750C charts apexes with masterful precision and the bike retains much of the neutral handling that makes all Honda 750s so superior to other brands in making banking transitions.

Further enhancing the C-model's handling are the exhaust headers, which are tucked in further for more cornering clearance. Now the first things to strike sparks are the footpegs—unless the centerstand ricochets off the ground over a bump.

Surprisingly, the riding position doesn't inhibit fast cornering as much as those of other American-style bikes. The footpegs are located fairly high and out of the way, while the swoopy handlebar really doesn't move your hands far from where they'd be with the F-type's bar. In fact, the controls don't compromise your command of the bike at all, from the way you weave through metropolitan traffic to the way you can modulate the Honda's perfectly controllable brakes (which have received yet another quality-control improvement to exorcise the pulsing characteristics of the '79 models).

That's a welcomed feature, for the C-model's speed potential in all modes is well beyond the K-model's. The tires grip well, while the profile of the fat rear rubber doesn't demand compromises in high-speed cornering stability (as long as rear tire pressure is increased). Actually, the bike's limits are determined by the extra weight of the rear mufflers working against the VHD shocks, resulting in a noticeable wag of the bike's tail if you're abrupt in peeling off for an apex or if you cross rough pavement on the way around.

It's this kind of performance that keeps the Custom from being smothered by the 900C-like custom-cruiser role Honda has set for this bike over the last three years. Chisel all the rough edges from it that you can, but the CB750C still doesn't lend itself to mainstream Buick-think. The white letter tires tell the story. This is a musclebike, the hot rod of the 750cc custom-styled class, the best-handling bike of all the American-styled motorcycles. Just like the original 750 Honda, the CB750C is true to the high-performance ethic that produced its engine design. •

Ride Review

• Honda has managed—through market pressure—to make a Buick Electra out of a Lotus Esprit. You see, the CB750F remains my favorite bike for zipping together a bunch of scattered turns, but the 750C doesn't give me the same thrills as the F. It's just another custom splattered with flashy paint and lumps of chrome. Much like a Buick Electra.

Oh, I don't hate the 750C, it's just that the bike does nothing to motivate my riding juices. I sit on it, shift gears and use the brakes. Same as if I drove an Electra everyday. And even though it shares the same bloodlines as the F-type, it gives me a ride sensation only Americans can love—sluggish through the turns with a seating position that puts me in living-room mode. Funny, I didn't notice anything about optional stereo or electric seats on the sales brochure. *—Dain Gingerelli*

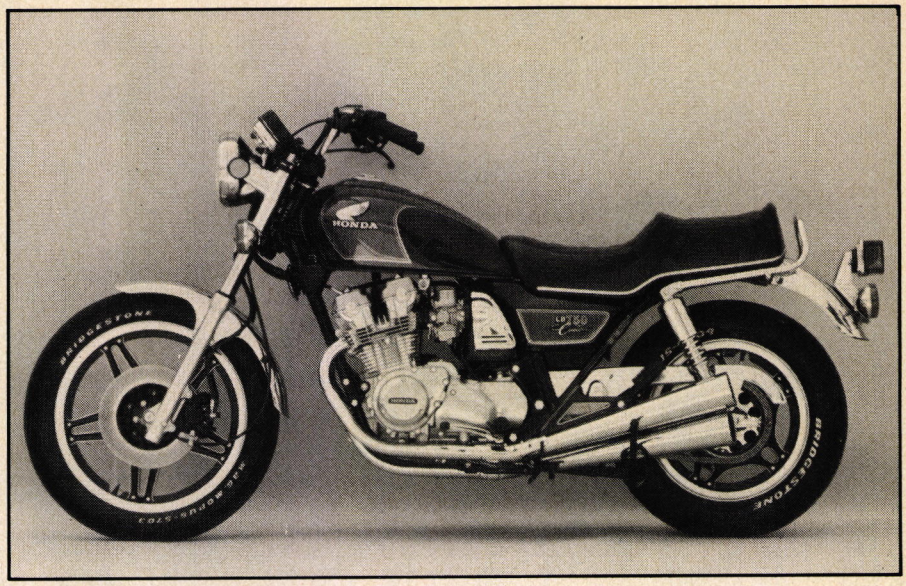
• One of the best things I can say for Honda's CB750C is that nothing in particular stands out. That might sound like some heavy condemnation, but in fact it's not. By and large, the hallmark of the current crop of cruisers is compromise. In order to achieve the Look, the rider suffers unnatural handlebar bends and seating positions that have got to be sure tickets to wristwreck and shatterspine. But unlike many of the *coifed* bikes, the 750C doesn't require contortions to make it work; its ergonomics aren't too far out of the mainstream for comfort. It performs most of the mechanical tasks you could ask of any good 750, right up to the limit of its ground clearance. The C is a competent, tireless cruiser that doesn't make me feel incompetent or tired-out while it goes about its business. And that, friends, makes it a standout.

—Larry Works

• Being a subscriber to high-performance function rather than image-bolstering form, I'm not supposed to like custom-styled motorcycles. But for various reasons, this Honda really appeals to me.

For one thing, I just love the way it looks. The classic overtones of Triumph Bonneville are especially strong in the gas tank, from its basic teardrop profile to the shape of its knee cutouts to the graphic treatment of the paintwork, strikingly done in dueling shades of gunmetal blue. And although I hate to admit it, I even like the way I *feel* on the 750C, crouched securely way down in the very bowels of the thing. I could do quite nicely without the engine's high-frequency vibration, thank you, and my spinal cord would rest easier with a bit more sophistication of seat and/or shocks. Nonetheless, the 750C is a Custom even a custom-hater could love. This one certainly does. *—Paul Dean*

Honda CB750C



SPECIFICATIONS:

IMPORTER: American Honda Motor Co.
100 W. Alondra Blvd.
Gardena, California 90247

CATEGORY: street

SUGGESTED RETAIL PRICE: $2998

ENGINE

Type ..... four-stroke transverse vertical four
Valve arrangement ..... double overhead cams, four valves per cylinder
Bore and stroke ..... 62.0mm x 62.0mm
Displacement 748.7cc
Compression ratio 9.0:1
Carburetion ..... four 30mm Keihin constant-velocity, one accelerator pump
Air filter ..... disposable paper element
Lubrication ..... wet sump
Starting system ..... electric only
Ignition ..... transistorized breakerless
Charging system ..... 12-volt; alternator, solid-state regulator/rectifier

DRIVETRAIN

Crankshaft-to-jackshaft drive ..... Hy-vo type chain
Crankshaft-to-jackshaft drive ratio 1.166:1
Jackshaft-to-clutch drive ..... straight-cut gears
Jackshaft-to-clutch drive ratio 2.04:1
Clutch ..... wet, multi-plate
Final drive type ..... #530 chain (⅝-in. pitch, ⅜-in. width)
Final drive ..... 18/43 :2.388:1

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.53	14.38	5.1
II	1.79	10.17	7.1
III	1.39	7.90	9.2
IV	1.16	6.59	11.0
V	0.96	5.46	13.3

SUSPENSION/WHEEL TRAVEL, IN.

Front ..... air-spring, 35mm stanchion tube diameter/5.75 in. (146mm)
Rear ..... 5-way adjustable spring preload/4.06 in. (103mm)

BRAKES

Front ..... dual single-action hydraulic calipers
Rear ..... drum, single-leading shoe, rod-operated

TIRES

Front ..... 130/190-16 67H Bridgestone Mag Mopus G504
Rear ..... 110/90-19 62H Bridgestone Mag Mopus S703

DIMENSIONS AND CAPACITIES

Weight ..... 530 lbs. (240kg)
Weight distribution ..... 46.0% front, 54.0% rear
Gross vehicle weight rating ..... 1101 lbs. (459kg)
Wheelbase ..... 59.5 to 60.9 in. (151 to 155cm)
Seat height ..... 30.6 in. (778mm)
Handlebar width ..... 32.3 in. (819mm)
Footpeg height ..... 13.0 in. (330mm)
Ground clearance ..... 4.4 in. (113mm), at exhaust
Steering head angle ..... 29.5 degrees from vertical
Front wheel trail ..... 4.9 in. (125mm)
Frame ..... tubular mild steel, double front downtubes
Fuel tank ..... steel, 4.3 gal. (16.3/), including 0.7 gal. reserve (2.8/)
Instrumentation ..... speedometer, tachometer, odometer, tripmeter resettable to zero

PERFORMANCE

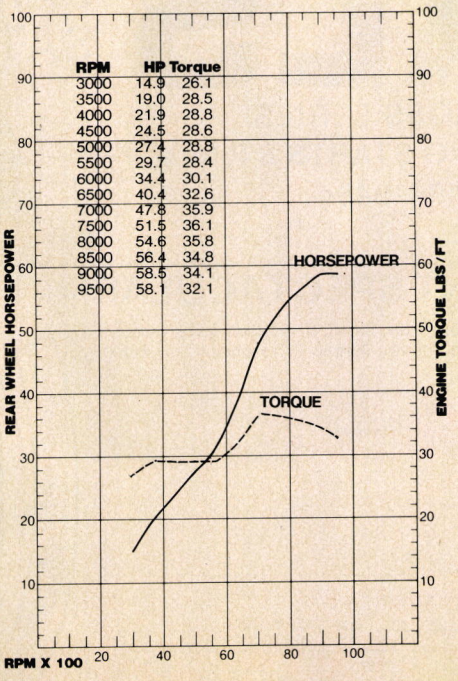
Fuel consumption ..... 39 to 46 mph (16.6 to 19.6 km/l)
Range, maximum ..... 167 to 198 miles (269 to 319 km)
Range, reserve only ..... 27 to 32 miles (43 to 52 km)
Speedometer error, 30 mph indicated ..... 30 mph actual
Speedometer error, 60 mph indicated ..... 59 mph actual
Best ¼-mile acceleration . 12.678 sec., 105.26 mph (169 kph)
Top speed (calculated) ..... 126 mph (203 kph)
Stopping distance from 30 mph ..... 31 ft. (9.5m)
Stopping distance from 60 mph ..... 131 ft. (39.9m)

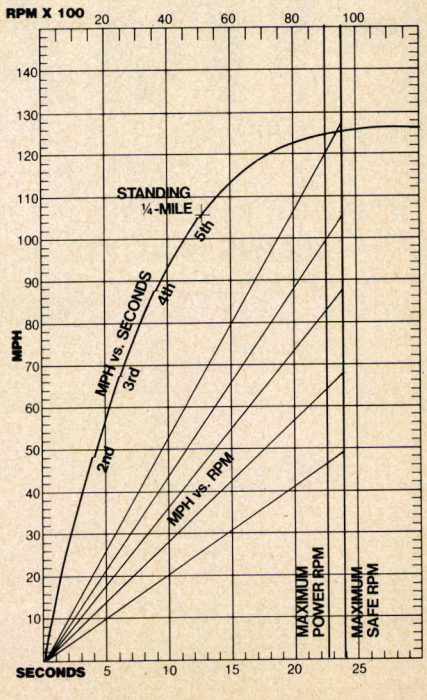
All weights and measurements are taken with machine unladen and fuel tank empty.

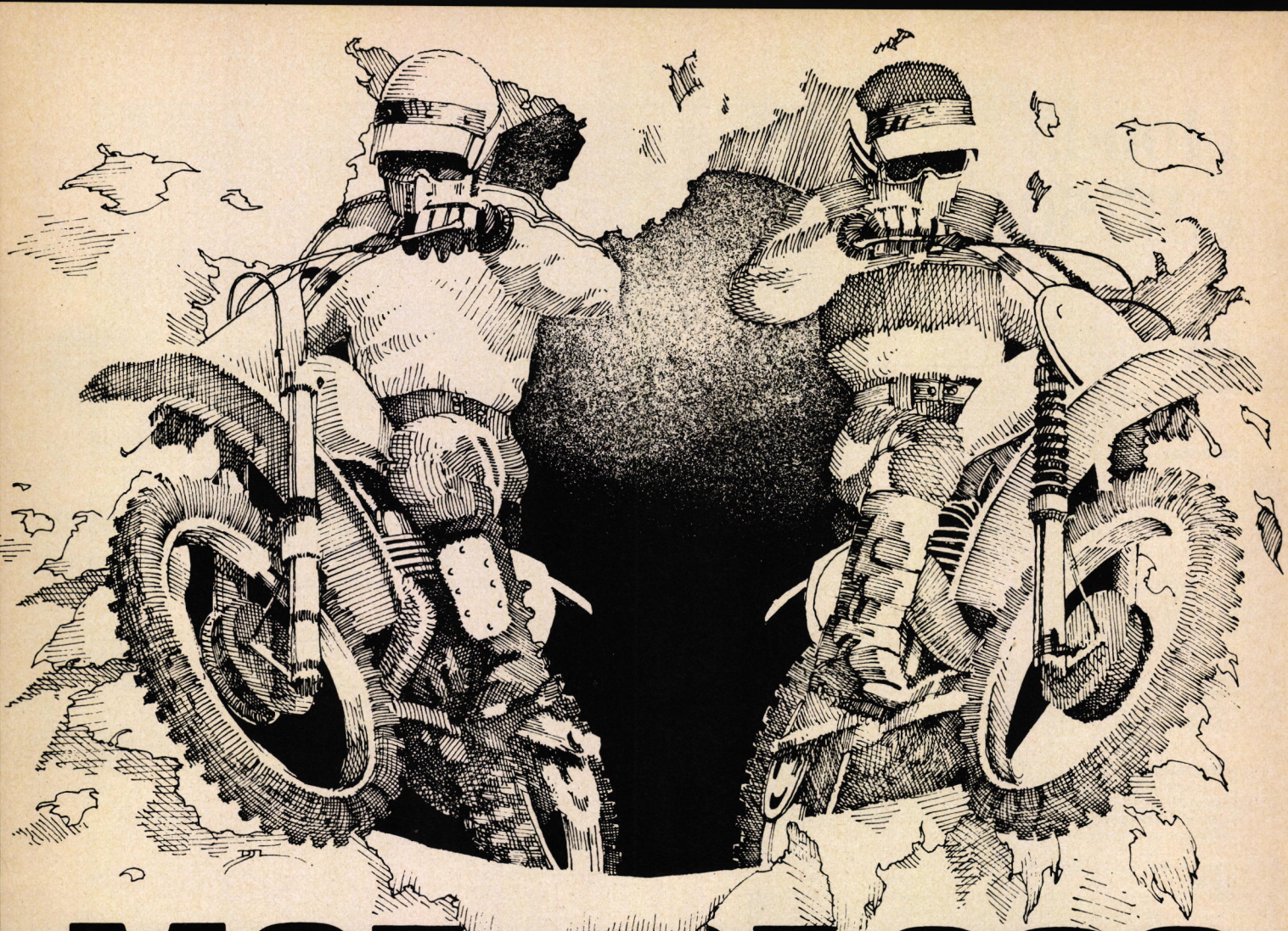
COMPARATIVE TEST DATA:

Make	Quarter-Mile, sec/mph	Top Speed, mph	Weight, lbs	Stopping Distance From 60mph, ft.
Honda CB750C	12.68/105.26	128	530	131
Yamaha Maxim XJ650	12.60/107.4	120	453	128
Yamaha XS850LG	13.10/101.7	116	548	144
Suzuki GS750ET	12.62/105.5	122	523	130
Kawasaki KZ750	12.50/107.8	127	471	134
Honda CB750K	12.77/105.8	124	525	130

PERFORMANCE:







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$ 6 (no discounts) x	_____	= _____	$3.00 x	_____	= _____	_____

Handling Charge $1.00

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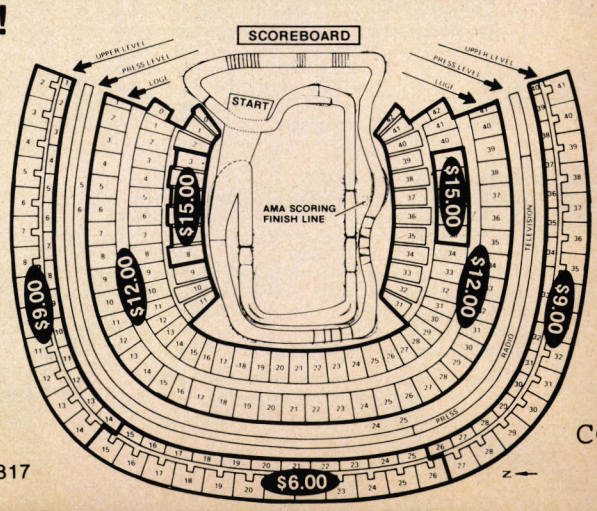

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SPORT LINES

Cycle Guide's True Tales of Race Courses, Dark Horses and Machines at Speed

EDITED BY DAIN GINGERELLI

PHOTO © 1980 PATRICK BEHAR

Fremont Frenzy

The best of 1980's dragracers push the distance/time frontier a little further.

• Fremont, California lies hard off San Francisco's east Bay, along Highway 17 about 30 miles below Oakland. It's a farming community and a commuter town; a place of contrasts, with a GM assembly plant and a Peterbilt factory amid the onion fields, pastureland, condos and motels spreading south on the way to San Jose. Urban growth and agri-smog typify the ambivalence of Fremont. It is home to the West's largest sky-soaring airport. Next door, on the same acreage, it is also home to what just might be the world's fastest dragstrip.

"Anytime you get close to this place you have the feeling that records are going to be broken," said Greg Guarinello, an NMRA Official, at tech inspection before the start of qualifying for the Golden State Nationals. That records fall at Fremont is a fact of dragracing, a fact bolstered by more than 60 national ET and top speed marks that have been set at the facility in its two decades of existence.

"It's *not* short and it *doesn't* run downhill," said Jack Williams, the track owner, putting to rest for the umpteenth time two persistent Fremont rumors. "We're surveyed every couple of years to uphold our sanction."

"I think it's just ideal conditions," said Jim Harris, NMRA Field Director, as qualifying began for the GS Nationals, round No. 5 on a six-event Championship tour. "Salt air at near sea level, good sunshine but not too much heat."

Whatever, four professional categories of NMRA competition set eight new national records during the Golden State weekend, upholding Fremont's reputation and proving that conditions were, indeed, ideal.

By mid-morning Saturday, Terry Vance is staging his Pro Stock GS1100 Suzuki for a second qualifying run. His first pass, 8.86 sec. @ 149.25 mph, was good, but he felt he hadn't shifted quite right between second and third. He corrects—a key to success in dragracing—and his second run produces a top speed of 150.5 mph, the first time a Pro Stock bike has broken the 150 barrier.

"One Fifty-fifty," he exalts back in the pits. "Boy, can't argue with that! Know what, though? I still think I can do better than that."

Continued

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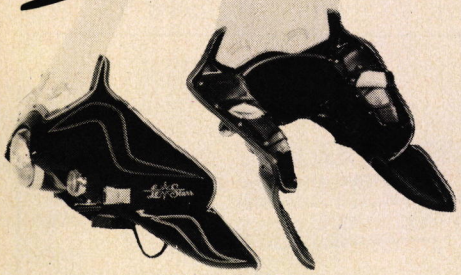

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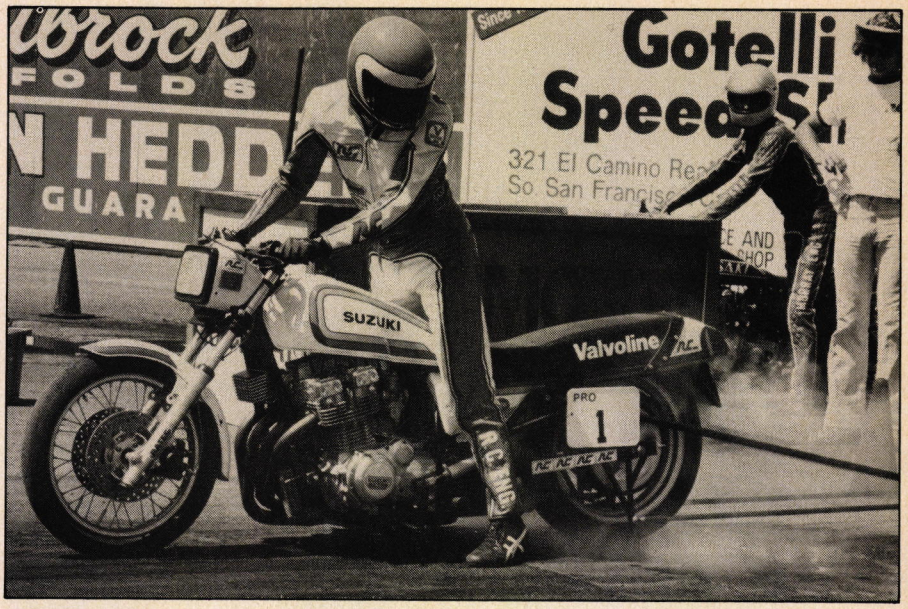


Bob Carpenter smoking his rear tire

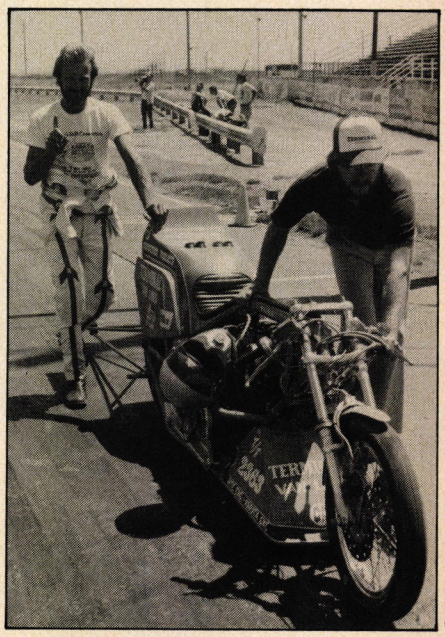
Later Vance smoked his No. 1 plate.

It's easy to get optimistic at Fremont, but before qualifying concluded Vance *had* done better: an 8.80-second @ 151.26 mph absolute best, and both ends of the national Pro Stock record. So much for records One and Two.

The national Top Fuel point leader, Bo O'Brochta, staged to qualify just after Vance. It was noonish, the track was heating up and the traction near perfect. No one quite understands just what makes O'Brochta's Magnacharged, nitro-burning Kawasaki so fast this year, least of all the quiet 40-year-old rider from Ft. Lauderdale, Florida. "Hard work and a lot of bucks," he allows, before scorching the Fremont strip with a 7.30 sec. @ 188.67 pass, lowering his own ET record by two-and-a-half tenths with this run, and qualifying a half-second under the next quickest Top Fuel qualifier. "I think by next year, one of us will run in the sixes," he says, eyeballing the Fremont track like a gator sizing up a salamander. Three.

The other two pro categories, Super Eliminator and Pro Comp, were heard from during qualifying, too. S/E is a hybrid bracket comprised of five different classes of machines that are factored according to a weight-to-cubic-inch ratio, and by type of fuel allowed, in order to equalize performance. Mike Brusso's A/Fuel Kawasaki qualified first with a 7.92 sec. @ 174.08 mph run; no record, but first nonetheless. Jon Baugh, currently second to Brusso in the standings, took his turbo Kawasaki gasser to an 8.15 sec. @ 167.59 mph personal best; again, no record. Then Terry Kizer, of Houston, hooked up cleanly and blistered his turbo-Kaw to a 7.93 sec. @ 169.17 mph, becoming the first gas-burning bike ever to run in the sevens. And record Four fell at Fremont.

In Pro Comp—the top sportsman category and last professional class—Geoff Masters on a B/Gas Kawasaki tops the qualifying field and sets the final records of the day. Geoff's 8.92 sec. @ 147.05 mph lowered single-engine, normally aspirated gas-burning bikes into the eights for the first time ever, with a class mph record along the way. Five and Six, and qualifying was, mercifully, over.

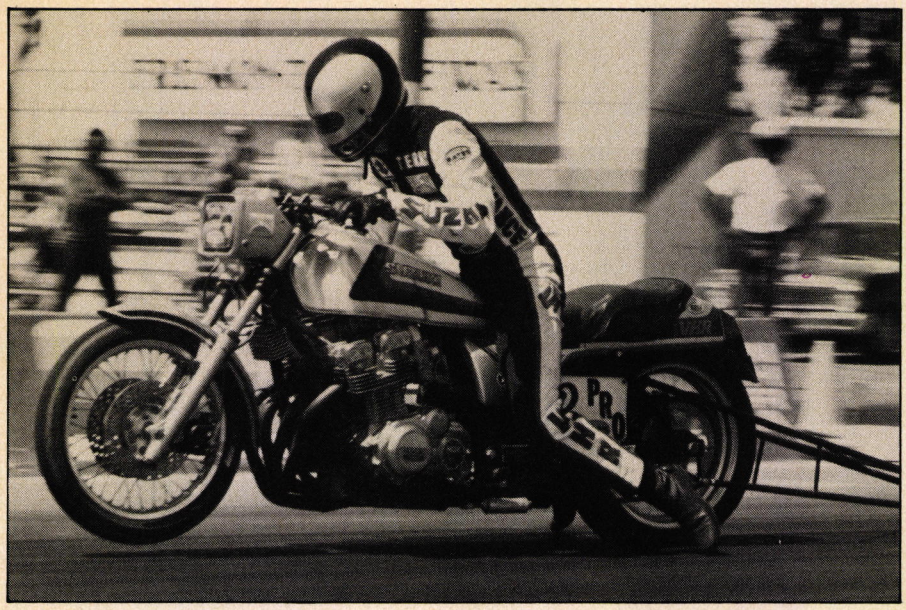


Bo O'Brochta and the TVL top fueler

His right hand says it all.

© 1980 JERRY SMITH

Although Sunday's final eliminations were hardly anticlimactic, at least one Top Fuel pilot, Danny Johnson of Yadkinville, North Carolina undoubtedly wished they were. Johnson, who qualified second in Top Fuel waaaaay back of O'Brochta, made a morning practice run at 169-plus mph and shut off quickly as he passed the lights. Too quickly, for as the weight shifted to his front wheel it set off an horrendous wobble. Johnson managed to wrestle the bike for a scary split second, but then it pitched him off hard and both he and the bike bounced down the track. Johnson was on his feet by the time the ambulance arrived, but with a broken collarbone and wrist his afternoon was spent at Fremont's Washington Hospital.



Terry Vance moved back on top

With a top speed over 150 mph.

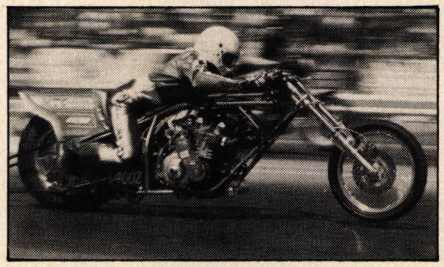
The Top Fuel field, slim to begin with, was now reduced to six. O'Brochta, as top qualifier, and Elmer Trett, whose double-engine Harley was to have been paired against Johnson, received first round byes. The two remaining pairs saw Wayne Davis put away Frog Thacker by three-tenths with a 7.66 ET, and Jim Bernard beat Marion Owens with a 7.81.

As Davis staged against O'Brochta in round two, he knew he needed an optimum run. He got it, in a way, because his 7.51 ET would have been a record in any other field. Unfortunately for Davis, Bo cut a 7.41 ET (and looked lazy doing it) to move into the last round. Bernard beat Trett with a 7.75 to set up the Final.

It was no contest, and Bernard knew it before the start. O'Brochta's 7.52 sec. @ 181.08 mph beat Bernard—who shut down early—by nearly a second, and was Bo's fourth straight pass under the old national ET record.

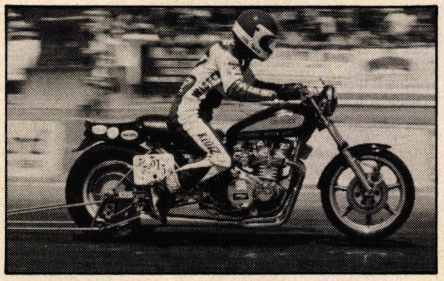
Terry Kizer (8.04 sec. @ 166.05 mph) defeated Jon Baugh (8.39 sec. @ 161.29 mph) in a surprising Super Eliminator Final. That the two turbo-Kaw gassers would face off in the finals was mandated when Mike Brusso, the No. 1 qualifier, redlighted against Baugh in the second round of eliminations. Baugh was a happy recipient of Brusso's mistake, moving through the field and earning points toward the overall championship after Brusso was sidelined. Even though he lost the final at Fremont, Baugh is just 20 points behind Brusso, and with just the Atco Nationals remaining, their struggle for the crown is far from over.

Not so in Pro Stock, for Terry Vance knew if he won at Fremont he would wrest the No. 1 plate from Bob Carpenter without having to worry about racing at Atco. Carpenter picked up a 1980 sponsorship from R.C. Engineering when Vance left that firm to head up his own VHR team, and both riders chose to campaign Suzuki GS1100s this year. But the Byron Hines-tuned VHR Suzuki had all the speed at Fremont, and Vance, incredibly, was never under the 150 mph mark during Sunday's finals.



Terry Kizer's Super Eliminator

Under eight seconds on gas.



Geoff Masters invades the eights

Setting both ends of the record.

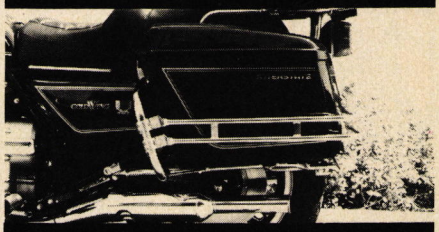
Two 150-flats, over Larry Cook and Cedric Johnson, set up a showdown against Carpenter, who defeated his boss, Russ Collins, and "Superbike Mike" Keyte with speeds in the 147-pluses. Their final was close for about 1000 feet, but Vance's top end (8.81 sec. @ 151.26 mph) was too much for Carpenter (8.87 sec. @ 147.05 mph), and Terry took home the 1980 title.

The Pro Comp finals were a foregone conclusion. With just one bike under nine seconds, the only question was whether Geoff Masters could find enough juice in his B/Gas Kawasaki to set another class record. He could, and did, with an 8.90 sec. @ 147.54 mph final run over Rick Stetson, claiming both ends of the national record he had set just 24 hours earlier. Seven and Eight, and the weekend was done.

—Jeff Burtt

Continued

Interstate Rails



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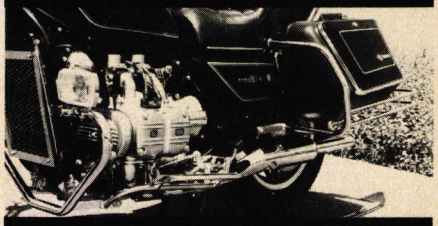

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Sportsman Showdown

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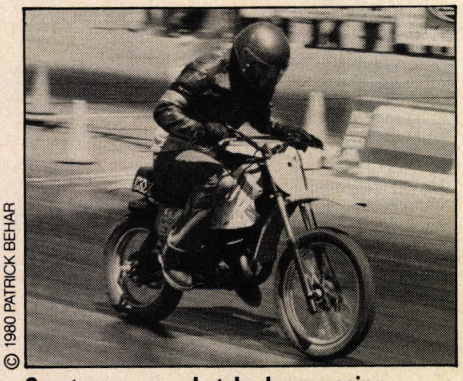
• Let's face it: Who among us has resisted that occasional urge to show the 427 Vette in the next lane just who's boss? Well, if there's a stoplight bandit in your soul but a fistful of speeding tickets on your record, it might behoove you to check out dragracing, NMRA-Sportsman style. For a minimum entry fee, and a short trip through tech inspection, a stock bike—*any* stock bike—can run on the same track, on the same day, in front of the same crowd as the NMRA professionals, and earn a certified ET and Top Speed slip to prove it.

Admittedly, it is incongruous to see a rider in blue jeans and hiking boots astride a KX80 staging just behind Jim Bernard's Top Fuel Yamaha. Burnouts with knobbies are a precarious proposition at best, and ET's in the 31-pluses tend to draw titters from the grandstand. No matter. If you've a mind to, you can run what-ya-brung, and there are a host of classes with weight and ET handicaps to insure that your day will be competitive.



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Sportsman run-whatcha-brung racing

Producing a hair-raising 31-sec. ET.

In fact, you can even be famous. See, there was a ninth record set at the Fremont Golden State Nationals. A sportsman in the A/Stock class, Vic Force of Adrian, Michigan, came to Fremont with a new Suzuki GS1100 and burned an 11.06 ET at 122.61 mph. Force thus became the first rider to eclipse 120-plus on a stock bike, a record overlooked amid the other heroics of Fremont.

In the Sportsman class, a stock bike is just that: factory production and available to the general public. And you can't extensively modify the frame, forks or engine, either. According to the rule book, available through NMRA, P.O. Box 1320, York, Pa. 17405 at a cost of $2, there are certain modifications permissible, but all seem in the interest of keeping the costs of racing down.

So, all you stoplight bandits, there's a new place for you to hang out—the dragstrip, where the only losers are those who don't get through the lights first. *—Jeff Burtt*

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MOTOCROSS:

Howerton vs. Jobe

A difference in attitudes at the Unadilla USGP.

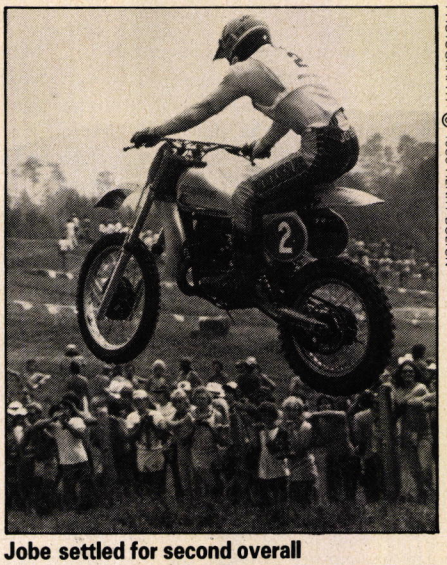
• In American racing circles, Unadilla is considered a European-style motocross track. The rolling hills, virgin turf and baseball-size rocks remind Americans accustomed to hard-baked dirt of a European paradise. And as a result, many American riders figure the Europeans have an edge at Unadilla.

Such has not been the case over the last two 250cc USGPs, however. First Marty Tripes prevailed in 1978 and then last year Kent Howerton demonstrated his gumption with a second-moto last-lap charge to claim the victory. Take the Europeans aside and ask them to explain the situation and they will politely but firmly insist that Unadilla is much faster than the usual obstacle-ridden European track. Fifth-gear jumps are for crazy Americans, not strategists racing for world championship points, they say. One must take the long view about the significance of this race.

New 250cc AMA champ Kent Howerton brought his Suzuki to Unadilla for his annual one-shot in the FIM points race, looking to repeat his win and emphasize his dominance of the U.S. motocross scene. Curiously, not many Americans appeared at Unadilla to challenge him. Yamaha's Mike Bell and Marty Tripes sat out the race, as did Warren Reid. Commented Yamaha team manager Ken Clark, "It's been a long, hard season and Bell just didn't want to race. Tripes was still recovering from a broken ankle."

Howerton didn't care who he faced in New York State, however, "I think Unadilla is the best track I've ever raced on, and winning another GP is important to me." The only threat to Howerton lay with yet another winner in his own camp, 19-year-old Georges Jobe, who was poised to capture the 250cc championship.

As it turned out, both Howerton and Jobe got what they came to Unadilla for: Howerton won both motos while Jobe racked up points with two second place finishes. The way they did it says something about the difference between American and European motocross, however. Howerton rode the latest Suzuki single-shock bike. Jobe was offered a new single-shocker, but even though he could afford to lose a few points in his battle with Husky's Dimitrar Rangelov, he chose to stick with his conventional twin-shock.



PHOTOGRAPHY © 1980 HENRY BOLTON

Jobe settled for second overall

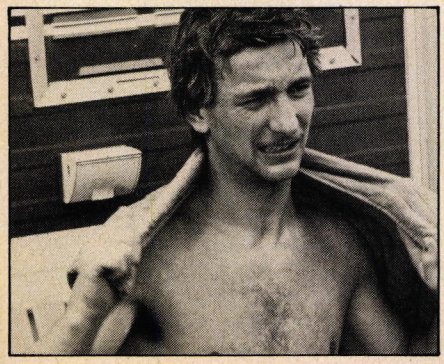
But the 250 world title was his.

You would expect Jobe to play it safe on the track as a result, for after all, Suzuki team manager Mark Blackwell says of him, "His attitude and approach to racing is amazing for so young a rider. He has the maturity of a ten-year GP veteran." Nevertheless, Jobe dueled Howerton for the lead in both motos—racers are racers no matter what their goals are.

Once the race ended, Howerton was USGP champ once again, a title he clearly relishes. But Georges Jobe, World Champion, is already looking ahead beyond the USGP. As he commented for *Cycle News*, "If I can win the championship again, then perhaps I can move to the 500cc class."

As usual, Unadilla revealed a difference in European and American attitudes as well as riding styles.

—*Terry Whytal*



Georges Jobe relaxes between motos

Poised like a 10-year veteran.

Kent Howerton leads the second moto

Another USGP for the national champ.

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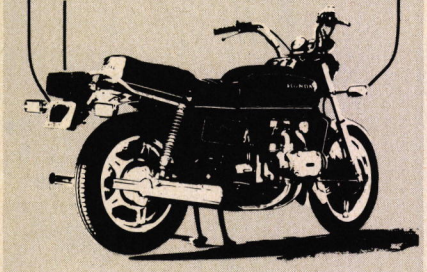

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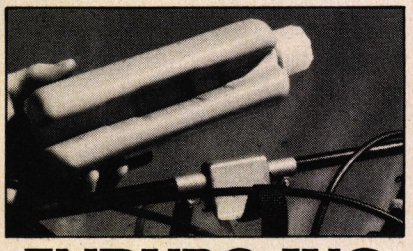

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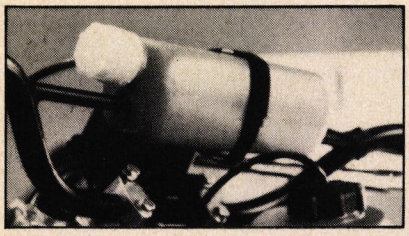

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MOTOCROSS:

Mid-Ohio Makes Three

U.S. riders score a triple play in USGP motocross.

• "The worst mud I have ever raced in," were the only words three-time world champ Gaston Rahier could muster through a mud-clogged mouthpiece after the Mid-Ohio 125 USGP. Before the end of the second moto, Rahier and a mudbowlful of top world riders were stuck ankle-deep in the Ohio quagmire, their engines silenced by the virulent conditions.

The mud didn't play patriotic favorites, either, as last year's winner Mark Barnett dropped out of the second moto with a mud-clogged airbox. Another mud-DNF was 125 national champ Broc Glover. In disgust, Yamaha team manager Ken Clark said, "It really wasn't a race at all—rather a survival contest."

Best survivor was Mugen's Johnny O'Mara, posting a 1-3 moto finish for first overall. O'Mara's win was his first for Mugen, and vaulted the water-cooled Honda-hybrid into the top-runner ranks of the volatile one-two-five class.

Ironically, most of the factory water-cooled bikes ran into serious over-heating problems *because* of the wet conditions. Biggest concern was mud-clogged radiators. About the only remedy most team mechanics could find was to use wide-mesh screen to help deflect splattering mud.

But the riders suffered most. It was hard to gather traction under the mud-congested knobbies, and even more troublesome was poor vision. Goggles became mud-coated after only a few go-rounds, and some riders vainly discarded earthened eye-gear for better vision. The solution was transitory, though—most of the goggleless riders eventually dropped out with mud-irritated eyes.

Those who showed more patience made periodic pit stops for fresh lenses. Ron Sun took that approach, halting his mud-red Honda in the pits periodically during the second moto. His conservative strategy paid off and he took the second moto win. Unfortunately, his engine's electrics soaked up some water in the first moto for a DNF. O'Mara could afford to be even more conservative than Sun. Even so, while running second to Sun he lost traction and spilled, but quickly remounted for a third-place finish and the overall win.

It was O'Mara's steady ride that gave America its first-ever USGP hat trick, too. Further, it supports theories on this side of the ocean that U.S. motocross racers have risen to the level of the Europeans. Some even argue U.S. riders are better. Nevertheless, there's no disputing Marty Moates, Kent Howerton and Johnny O'Mara's credentials—they've conquered the Europeans this year. *—Terry Whytal*

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Broc Glover gathering mud

Water-pumper turned mud-pumper.

Mugen and O'Mara make it three

Keeping the USGP an American tradition.

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We don't expect you to buy our magazine because it has tips on gourmet dining. Nor because it tells you what the latest in jogging shoes is. We expect you to like CYCLE GUIDE because it's the best-written, most thorough, most entertaining dose of high-intensity moto-info you can buy. A kind of monthly one-stop shopping center for all your motorcycle input, from new-model tests to inside tips, secrets of the sport, new ways to have fun with your bike and evaluations of the accessories made to help you have that fun.

Street & Dirt

Naturally, we don't confine our interest to one kind of motorcycling. For instance, we think there's nothing in all the world more fun than doing cross-ups with the spectacular MX machinery available today. Not to mention dodging trees and rocks in enduros. In fact, if it's something you can do with a motorcycle off-road, we're sure to do it.

Which doesn't mean, of course, that we don't work the other side of the trees. Whenever we can, we turn our lively and exhaustive street tests into staff rides, blitzing the twisties and eating up thousands of miles in touring. Because we love street motorcycles as much as dirt bikes.

Just like you.

Big & Small

Some people seem to think you can't have fun on anything that doesn't have a handful of cylinders and eyeball-squashing power. And some people think that God meant Man only to ride bikes with seven-speed gearboxes and a teacup-full of engine. We're not like either group. We can have fun testing and writing about anything with two wheels and a motor, from crypto-chopper to minibike. So our entire staff is totally conversant with the whole motorcycle spectrum, from tiddler to terror. And consequently, whatever your preferences in displacement and power, you'll find them within the pages of CYCLE GUIDE.

Because fun isn't measured in cubic inches.

Riding & Writing

Ours is a staff of expert riders. Qualified to ride or race almost anything. But it's not our ability to turn hot laps that makes us proud of our work. It's our ability to turn hot licks on the typewriter.

That's because while there are a lot of good riders around, there aren't many who can turn the experience of riding into something others can share and delight in. Or learn from. So we've been very selective about who writes for us, making sure that riding skill is matched by writing skill. The result isn't Shakespeare, but we think our ways of taking you along with us over the jumps, across the apexes and through the woods on two wheels are better than anyone's in the business.

Including Shakespeare.

Them & Us

There are a lot of motorcycle magazines on your newsstand. Some specialize in dirt bikes, some in street bikes, others in choppers. Some are very nice to flip through in idle moments. And like you, because we're full-on motorcyclists, we flip through them too, occasionally even finding something we like to read. But like you, we think there's a world of difference between an "occasional" magazine and one that delivers the kind of excitement, enjoyment and insight we'd feel good about spending our money on.

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Pit Bits

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• If you're looking for a factory bike to race, you should have stuck around the Husqvarna pits after the Unadilla USGP. **Husky** laid its **reputation** on the line this year when all team bikes were uncrated at the warehouse, prepped by factory mechanics, raced, then sold after the GP. According to Greg Davis of Husqvarna East, the idea was to show the racing public Husqvarna races what it sells, or in this case, sells what it races. Incidentally, the cost for each bike was retail, same as if the bikes were purchased off the dealer's showroom floor.

• At the other side of the Unadilla pits, American Honda wouldn't dare part with its team bikes. Factory riders Rolf Dieffenbach and Fritz Kobele were given spare **Pro-Link** RC250s for Unadilla, and their comments were that the bikes **handled better** than their twin shockers, which they have raced throughout the season.

• In the indoor motocross war, Mike **Bell** rang loud and clear at Philadelphia, winning the first of a double header, and placing third the following day to wrap up his first stadiumcross championship.

• In the meantime, Mike **Kidd** was in Los Angeles at Ascot Raceway breaking tradition. By winning the TT on his Army-sponsored Honda XR500 single, he became the first rider in **17 years** to clinch an AMA National at Ascot on a 500 single.

• Dale Singleton ended his own personal dry spell when he returned to win the Winston Pro Pocono roadrace. **Singleton** has had less than moderate success in Europe this year with his TZ500, and returned to race Pocono to get his **luck** on a more positive track.

• Also present at Pocono was Mike Baldwin. You remember **Baldwin,** he was New England's great hope until he **crashed** hard at Loudon last year. He's back, and he placed third in the Superbike race aboard one of Honda's team bikes. The vacancy occurred when Ron Pierce injured his back after a crash in the Suzuka Eight Hour. Baldwin followed his third place finish at Pocono with another third at the Road Atlanta Superbike race.

• Former world champ, Barry **Sheene** hasn't had the fortune of Singleton and Baldwin. His year has been mixed with poor showings on his TZ500 and injury that resulted in **amputation** of a little finger. Sheene's trying to change his racing luck with a new chassis for his 500. The new frame is from Harris Performance, and is of monoshock design. He's had no success this year, but now that winter has settled in, he can continue R&D for the 1981 campaign.

• Sheene won't be alone in testing. There's a new entry rumored for next year's **500cc** title chase: **Cagiva.** The name's familiar to off-roaders, but look for a Cagiva on the pavement next year, too. The Italian firm is trying to keep an all-Latin team, and is talking to Virginio Ferrari as the No. 1 rider. Sheene is also in the running.

• Also in the offing is another **Italian** 500.

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Jorge Moeller, the engine builder responsible for Jack Middleburg's success at the Dutch GP this year, has been rumored to be somewhere on the Boot developing a 500 four. Apparently, the R&D isn't restricted to the **500 class,** since Moeller reportedly has blueprints for a 125 as well.

• Yamaha hasn't rested on its laurels of wins, either. Kenny **Roberts** has a slightly different engine in his YZR500. Basically, Yamaha turned the 500's two outside cylinders around so the carbs point forward and the exhaust chambers dump rearward. The object is fewer exhaust bends, so all four chambers have equal length. Says Kel Carruthers, **"It's faster** than the old engine." As of yet, the refined engine rests in the old round-tube frame, but look for the aluminum square-tuber to cradle it.

• Wes Cooley's **Yoshimura-Suzuki F1** bike is reported to get an aluminum square tube frame this winter, too. According to Cooley, he'll be in Hamamatsu, Japan to test the bike at Suzuki's Ruyuyoo circuit this November. Cooley also said the new frame will be **monoshocked,** and will be similar to Randy Mamola's factory RG500. This probably means the RGs will have square-tube frames, also.

• **Mamola's RG500** seems to be handling well this year. Even though he wasn't excited about racing at the Silverstone track because it's so fast, he managed to **win** the British GP anyway. The 19-year-old from California said the track is fast, so it takes a long time to learn all the right lines. Mamola is in direct contrast to Roberts, who relishes fast courses, since fast courses mean fast turns. And no one rides fast turns like Roberts.

• Unfortunately, one of Silverstone's fast turns caught **Patrick Pons**. The winner of the last F750 world championship and this year's Daytona 200 winner crashed and received fatal head injuries. Pons was 28.

• The reason you haven't heard much about the controversial **World Series** this season is because the riders are too busy with racing to concern themselves with politics, and the FIM seems prepared to bend to some of the riders' demands. Evidently, the FIM might expand the world championship to include five races in the **western hemisphere.** The racing will also include Europe, Japan, Australia and New Zealand. There will be two formulas, 1 and 2, based on 500cc and 250cc classes. At present, speculation has it that the new series will begin in 1982.

• And as time marches on, vintage race bikes get older—and maybe slower. At least in some racers' eyes. **Mike The Bike Hailwood** rode a Honda 350 Six, circa 1967, around the Assen circuit at the Dutch GP this year, and had one major complaint: there were too many other **Vintage** pieces on the track for him to "have a go at it." Racers—they're all the same. •

Continued

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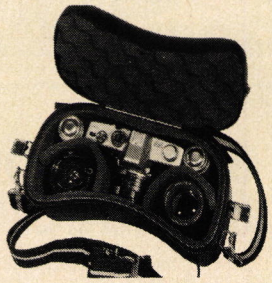

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Winners & Losers

Decision at Luxembourg

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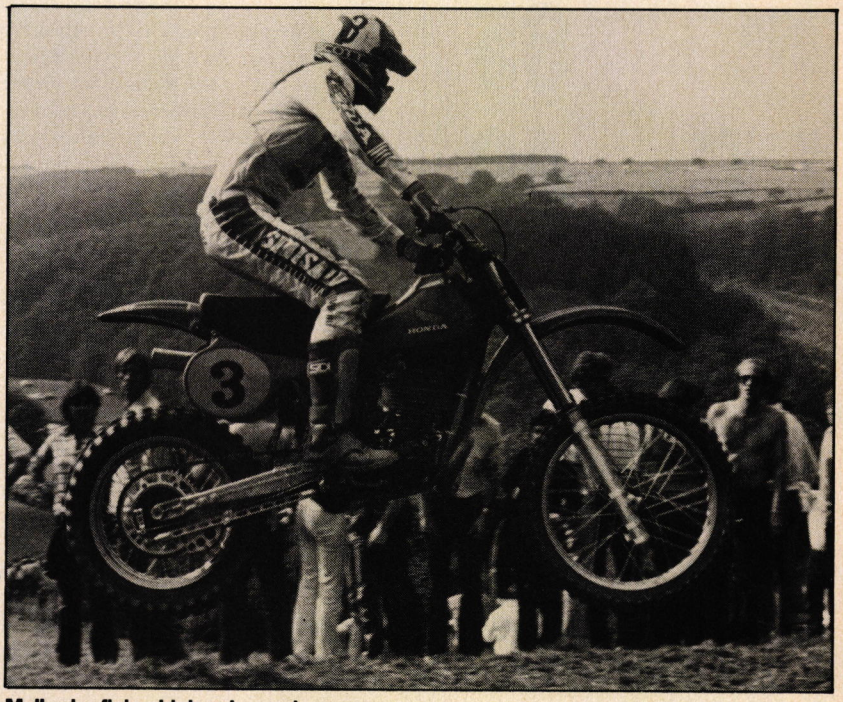


PHOTOGRAPHY © 1980 MIKE MEYER

Malherbe flying high at Luxembourg

No. 1 and sitting on top of the world.

• The Luxembourg GP shaped up to be a race with serious consequences from the first. To begin with, Andre Malherbe and Brad Lackey had their horns locked in a death struggle for the 500cc world championship. Only one point separated the pair after 11 races. The advantage rested in the Belgian's pits, but the game plan for both was the same: finish reasonably well with no foolish moves and no unnecessary risks.

One man at Luxembourg was prepared to take many risks, however—Roger De Coster. This was to be a race of some consequence for him too. It was to be his last and he wanted to go out with a win, hanging up his motocross boots with some token of accomplishment. After winning five world championships of his own, De Coster understood the demons that plagued Malherbe and Lackey before the starting gate fell, but he also had a few demons of his own to deal with.

Because he was nominally the Honda team leader, some expected De Coster to resort to team tactics in order to give Malherbe a boost toward the title. But De Coster has always been contemptuous of team tactics. In fact, it's rumored that one of the reasons he fell out with Suzuki could be traced to his refusal to let teammate Wolsink pass him at last year's British GP and thus gain valuable points in a duel with Graham Noyce in the world championship. So it really was no surprise when De Coster recorded the fastest qualifying time and hole-shot his way into a first-moto lead that was never challenged.

Brad Lackey didn't fare as well as De Coster in defeating his tensions in the first moto. He gated 17th after tangling with Malherbe and spent most of the moto desperately passing riders in order to catch Malherbe in third place. Lackey eventuallv moved into fourth and set his sights on Malherbe's red Pro-Link Honda. All intentions of simply finishing were forgotten. He had to pass and beat Malherbe in order to even their point totals going into the final moto.

Lackey charged hard. Perhaps too hard, because he clipped a straw bale marking the inside of a turn and fell. By the time he remounted, the Honda was too many turns ahead. The best the bearded rider from California could manage was fifth.

Going into the second moto, Malherbe enjoyed a five-point lead, which meant Lackey desperately needed a winning moto and a poor finish or a DNF from the Honda rider. Bad Brad gated in first, and although he fell to second at the end of the third lap,

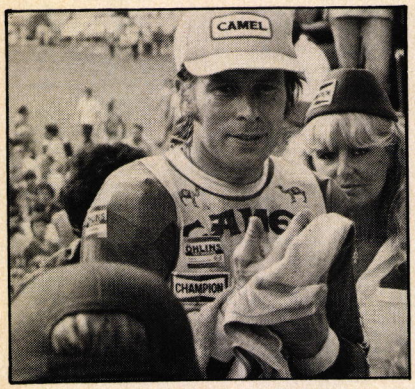
he was still a place ahead of Malherbe. If they finished in that order the championship would go to the Belgian. But instead of coasting to the finish behind Lackey, Malherbe found himself enbroiled in a terrific dice with the Kawasaki rider. The pair banged handlebars several times, and Malherbe gestured to the race officials that perhaps Lackey was riding a bit too aggressively—for a DNF by either would hand the championship to the survivor.

It almost happened. A tree caught Lackey's bike and sent him down. It was the deciding fall in the season-long wrestling match with Malherbe, for Lackey could regroup his tweaked bike only for tenth, giving the cup to the Belgian.

There are those who contend Lackey actually tossed the season away at the USGP, however. In the second moto on that hot June afternoon, he could have easily turned down the steam and settled for second. Since Malherbe's transmission locked up just as the 10 second sign came up, Malherbe had given Lackey 12 points as a gift. But then Lackey tossed it away trying to stay ahead of the moto's eventual winner, Marty Moates. Had Lackey owned those additional points after Carlsbad, he could have afforded to coast at Luxembourg. But as it turned out, the pressure was on the Kawasaki rider instead of the Honda rider.

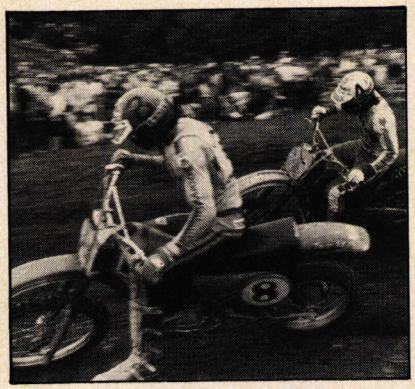
The one man at Luxembourg who proved his ability to deal with pressure was the complete professional, Roger De Coster. The rider who passed Lackey at the end of the third lap of the second moto was The Man himself. For one last time, De Coster had demonstrated that when the chips were down, he could come through—he won the moto and the race itself. It was a stirring reminder of his glory years with CZ and Suzuki. On the victory rostrum De Coster simply announced, "This is my 44th victory in Grand Prix and my last, too. I'm quitting."

—Dain Gingerelli



Roger D after the Luxembourg GP

Throwing in the towel to racing.



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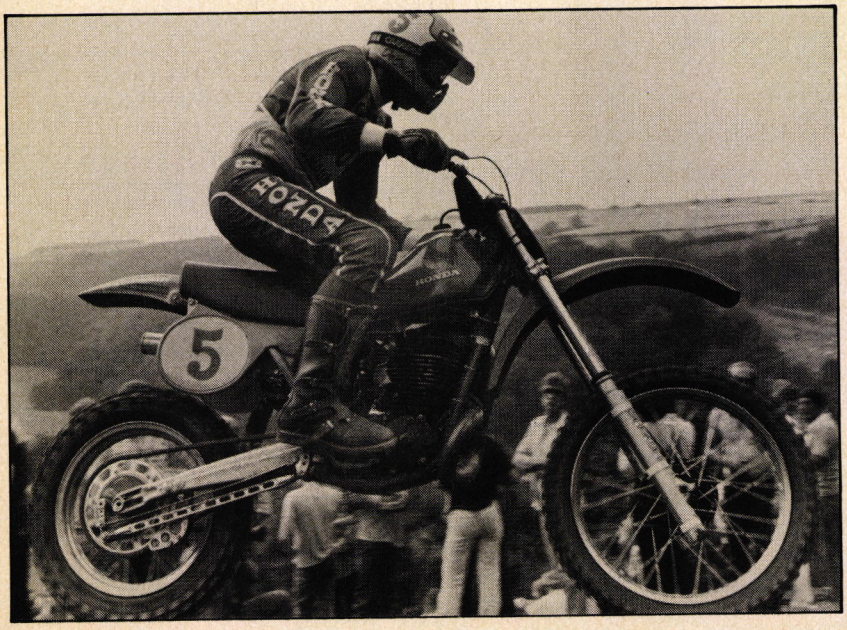
Lackey (4) moved from 17th to 5th

And in the process, lost four points.



DeCoster wins his last one

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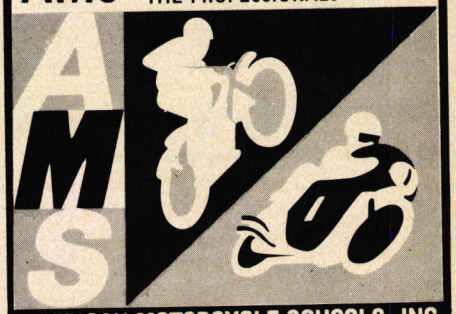

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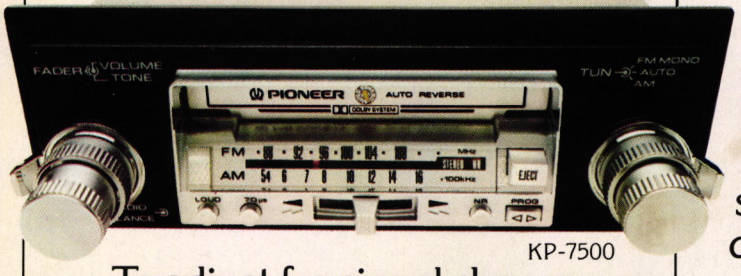

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